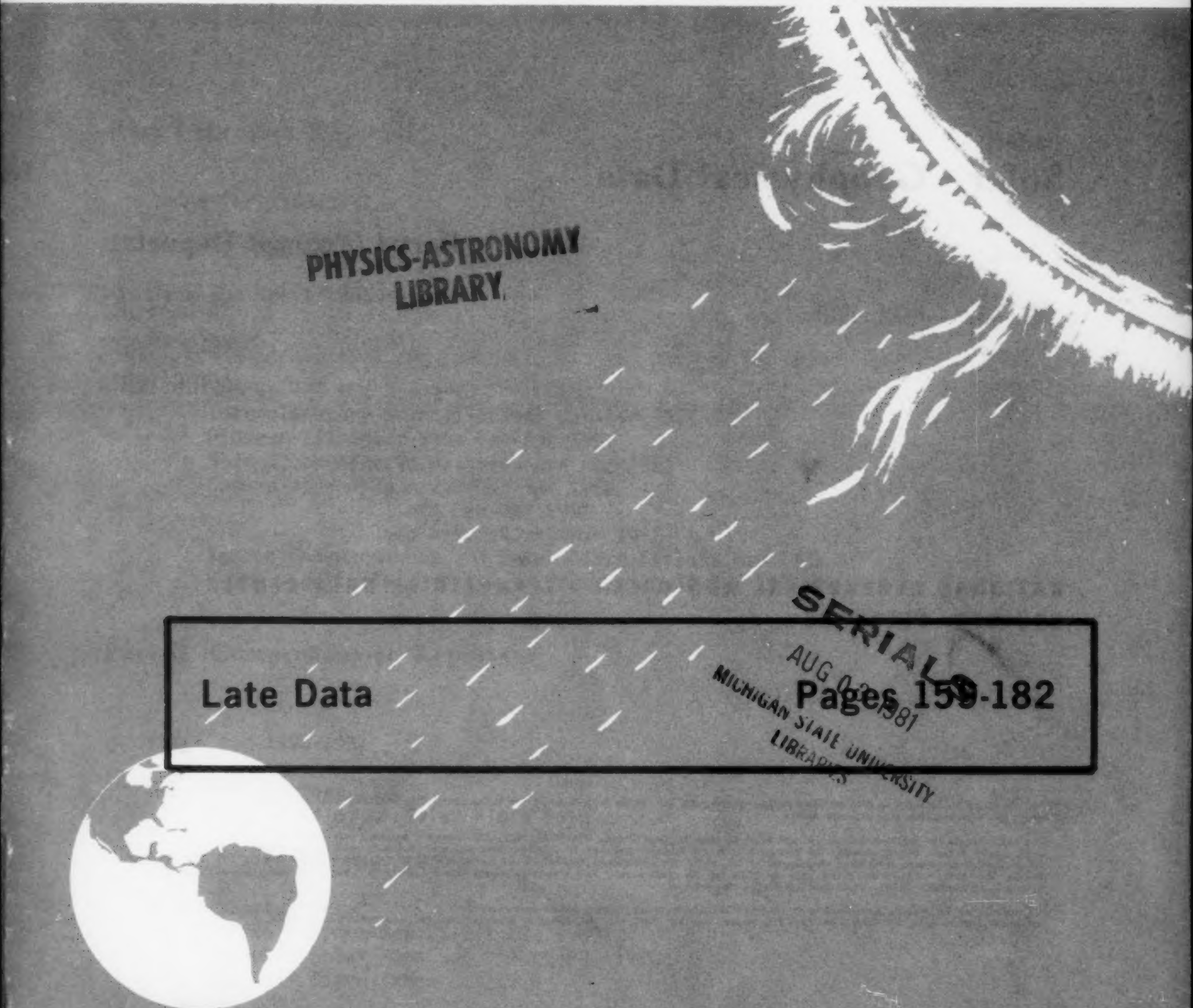
JUNE 1981 NUMBER 442 -- Part I

Solar-Geophysical Data prompt reports

Data for May 1981, April 1981 & Late Data

Explanation of Data Reports Issued as Number 438 (Supplement) February 1981



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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 442 JUNE 1981

DATA FOR
MAY 1981
APRIL 1981

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To standardize referencing these reports in the open literature, the following format is recommended:
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SOLAR-GEOPHYSICAL DATA

No. 442

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Acting Chief
Solar-Terrestrial Physics Division

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A.13ab	Solar Wind (Pioneers 8 & 9)	431A160	431A 38	432A 38	433A 37	---	---	---	---	---	---	---	---	---
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D.1d	Principal Magnetic Storms	431A154	432A161	433A153	434A152	435A155	436A171	437A168	438A154	439A148	440A152	441A166	442A155	
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D.1f	Sudden Commencement and Solar Flare Effects	433A168	433A168	434A188	435A164	436A179	437A176	437A169	439A163	439A149	441A170	442A180		
D.1g	Equatorial Indices Dst	433A167	434A186	434A187		436A178	436A168	437A167	438A153	440A160	441A172	442A182		
D.1h	Geomagnetic Substorm Log (Boulder)	430A 45	431A 42	432A 43	433A 41	434A 40	435A 44	436A 44	437A 49	438A 38	439A 40	440A 43	441A 51	442A 46
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F.1e	Cosmic Ray Neutron Counts (Alert)	432A170	433A165	434A183	434A146	435A151	436A165	438A163	439A162	440A159	440A145	442A177	442A151	
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Notes:

"431A 38" listed under 1980 May means that the sunspot drawings for May 1980 were contained in *Solar-Geophysical Data* Number 431 - Part I, beginning on page 38.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 442 Part I (Prompt)

MAY 1981 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1981

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

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02 MAY 1981 PRESTO TOYOKAWA  02/0015Z TENFLARE 160 FLUX UNITS 01/2137Z DURATION 3 MINUTES
04 MAY 1981 PRESTO BOULDER   04/0927Z SOFLARE M9/1B 04/0836Z N14E16 DURATION 67 MINUTES
                                      TENFLARE 04/0835Z 410 FLUX UNITS DURATION 8 MINUTES
05 MAY 1981 PRESTO TOYOKAWA  06/0025Z TENFLARE 390 FLUX UNITS 04/0837Z DURATION 8 MINUTES
06 MAY 1981 PRESTO BOULDER   05/1445Z SOFLARE X1/3B N17W01 05/1359Z DURATION 10 MINUTES
                                      TENFLARE 730 FLUX UNITS 05/1407Z DURATION 10 MINUTES
05 MAY 1981 PRESTO BOULDER   05/2259Z SOFLARE M4/2B N18W04 05/2259Z IN PROGRESS
06 MAY 1981 PRESTO TOYOKAWA  06/0045Z TENFLARE 110 FLUX UNITS 05/2252Z DURATION 50 MINUTES
08 MAY 1981 PRESTO TOYOKAWA  08/2345Z TENFLARE 1100 FLUX UNITS 08/2155Z DURATION 100 MINUTES
08 MAY 1981 PRESTO BOULDER   08/2348Z SOFLARE M7/2B N09E33 08/2157Z DURATION 103 MINUTES
                                      TENFLARE 910 FLUX UNITS 08/2207Z DURATION 98 MINUTES
09 MAY 1981 PRESTO BOULDER   09/0500Z TENFLARE 350 FLUX UNITS 09/0244Z DURATION 12 MINUTES
09 MAY 1981 PRESTO BOULDER   09/2220Z PROTON EVENT BEGAN AT 09/1440Z 17 PROTONS/CM2/SEC/STER AT GREATER THAN 10 MEV AT 2000Z IN PROGRESS
10 MAY 1981 PRESTO BOULDER   10/1200Z TENFLARE 2253 FLUX UNITS DURATION 275 MINUTES
10 MAY 1981 PRESTO BOULDER   10/1351Z TENFLARE 400 FLUX UNITS DURATION 5 MINUTES
10 MAY 1981 PRESTO BOULDER   10/1600Z PROTON EVENT BEGAN AT 10/0800Z 150 PROTONS/CM2/SEC/STER AT GREATER THAN 10 MEV AT 1600Z IN PROGRESS
13 MAY 1981 PRESTO SYDNEY    13/0435Z TENFLARE FLEURS 1860 FLUX UNITS INCREASE AT 0420Z
13 MAY 1981 PRESTO BOULDER   13/0422Z SOFLARE X1/3B N12E58 13/0350Z IN PROGRESS
13 MAY 1981 PRESTO TOYOKAWA  13/0525Z TENFLARE 4500 FLUX UNITS 13/0330Z DURATION 100 MINUTES
14 MAY 1981 PRESTO BOULDER   14/0315Z TENFLARE 470 FLUX UNITS DURATION 8 MINUTES
14 MAY 1981 PRESTO TOYOKAWA  14/0835Z TENFLARE 120 FLUX UNITS IN PROGRESS
14 MAY 1981 PRESTO TOYOKAWA  14/0417Z TENFLARE 860 FLUX UNITS 14/0313Z DURATION 80 MINUTES
15 MAY 1981 PRESTO TOYOKAWA  15/0103Z TENFLARE 120 FLUX UNITS 14/0835Z IN PROGRESS
15 MAY 1981 PRESTO BOULDER   15/0810Z PROTON EVENT BEGAN AT 15/0300Z 10 PROTONS/CM2/SEC/STER AT GREATER THAN 10 MEV AT 15/0600Z
                                      19 PROTONS AT 0810Z
16 MAY 1981 PRESTO BOULDER   16/0930Z SOFLARE X1/3B N14E14 16/0734Z DURATION 117 MINUTES
                                      TENFLARE 1400 FLUX UNITS 16/0810Z DURATION 83 MINUTES
16 MAY 1981 PRESTO BOULDER   16/2020Z PCA Began at 16/2015Z 2.9 db
16 MAY 1981 PRESTO BOULDER   16/2000Z PROTON EVENT BEGAN AT 16/1325Z 130 PROTONS/CM2/SEC/STER AT GREATER THAN 10 MEV AT 16/2000Z
17 MAY 1981 PRESTO TOYOKAWA  17/0025Z TENFLARE 1600 FLUX UNITS 16/0750Z IN PROGRESS
17 MAY 1981 PRESTO BOULDER   17/2305Z SSC OBSERVED AT 17/2303Z 40 GAMMAS
17 MAY 1981 PRESTO SYDNEY    17/2310Z SUDDEN COMMENCEMENT 17/2303Z
?7 MAY 1981 PRESTO SYDNEY    20/0620Z SMALL SUDDEN COMMENCEMENT 20/0519Z
?2 MAY 1981 PRESTO BOULDER   22/0700Z TENFLARE 140 FLUX UNITS 22/0623Z DURATION 9 MINUTES
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SUMMARY OF THE SESALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
121	01	30	161	173	008	N07W83	0	0	0		01	N07W83	Q	SOLQUIET
						N16W18	0	0	0			N16W18	Q	MAGQUIET
						N26W15	0	0	0			N26W15	Q	
						N18W13	0	0	0			N18W13	Q	
						N03W10	1	0	0			N03W10	E	
						N04E28	0	0	0			N04E28	Q	
						N20E31	0	0	0			N20E31	Q	
						S08E38	0	0	0			S08E38	Q	
						N07E52	0	0	0			N07E52	Q	
						N16E59	4	0	0			N16E59	E	
						N04E65	0	0	0			N04E65	Q	
122	02	01	215	185	013	S10W35	0	0	0	Presto Toyokawa	02	S10W35	Q	SOLQUIET
						N16W32	0	0	0	02/0015Z Tenflare		N16W32	Q	MAGQUIET
						N25W26	0	0	0	160 Flux Units 01/		N25W26	Q	
						N04W22	1	0	0	2137Z Duration 3		N04W22	E	
						N12W03	2	0	0	Minutes		N12W03	Q	
						N08E13	0	0	0			N08W13	Q	
						N03E15	0	0	0			N03E15	Q	
						S22E18	0	0	0			S22E18	Q	
						N20E19	0	0	0			N20E19	Q	
						N08E40	5	0	0			N08E40	Q	
						S08E26	1	0	0			S08E26	Q	
						N16E46	2	0	0			N16E46	E	
						N04E52	0	0	0			N04E52	Q	
						S12E69	2	0	0			S12E69	Q	
						N10E70	8	0	0			N10E70	Q	
123	03	02	311	190	012	S11W49	0	0	0		03	S11W49	Q	SOLQUIET
						N16W45	0	0	0			N16W45	Q	MAGQUIET
						N26W41	2	0	0			N26W41	Q	
						N04W36	2	0	0			N04W36	Q	
						N12W14	0	0	0			N12W14	Q	
						N08E00	0	0	0			N08E00	Q	
						N05E01	0	0	0			N05E01	Q	
						N20E05	0	0	0			N20E05	Q	
						S22E05	0	0	0			S22E05	Q	
						S07E13	0	0	0			S07E13	Q	
						S05E21	0	0	0			S05E21	Q	
						N07E29	2	0	0			N07E29	Q	
						N16E34	7	0	0			N16E34	E	
						N05E40	0	0	0			N05E40	Q	
						N09E44	0	0	0			N09E44	Q	
						N10E54	0	0	0			N10E54	Q	
						N17E55	1	0	0			N17E55	Q	
						S11E57	0	0	0			S11E57	Q	
						S22E77	0	0	0			S22E77	Q	
124	04	03	312	205	008	S10W64	0	0	0		04	S10W64	Q	SOLQUIET
						N15W58	0	0	0			N15W58	Q	MAGQUIET
						N23W52	0	0	0			N23W52	Q	
						N03W51	0	0	0			N03W51	Q	
						N20W08	0	0	0			N20W08	Q	
						S22W04	0	0	0			S22W04	Q	
						S08W01	0	0	0			S08W01	Q	
						S01E05	0	0	0			S01E05	Q	
						N07E16	7	0	0			N07E16	Q	
						N16E20	4	0	0			N16E20	E	
						N05E27	0	0	0			N05E27	Q	
						N23E29	0	0	0			N23E29	Q	
						N10E31	0	0	0			N10E31	Q	
						N10E42	0	0	0			N10E42	Q	
						N16E43	2	0	0			N16E43	Q	
						S11E45	0	0	0			S11E45	Q	
						S19E52	0	0	0			S19E52	Q	
						S06E60	0	0	0			S06E60	Q	
						S22E62	0	0	0			S22E62	Q	
						S20E65	0	0	0			S20E65	Q	
125	05	04	297	218	007	S11W77	0	0	0	Presto Boulder	05	S11W77	Q	SOLALERT 04/XX
						N15W71	0	0	0	04/0835Z Soflare		N15W71	Q	MAGQUIET
						N23W66	0	0	0	M9/1B Duration 31		N23W66	Q	
						N04W63	0	0	0	Minutes. Tenflare		N04W63	Q	
						N11W42	0	0	0	410 Flux Units		N11W42	Q	
						N20W19	0	0	0	Duration 8 Minutes.		N20W19	Q	
						S08W15	1	0	0	04/0835Z. Presto		S08W15	Q	
						S06W05	0	0	0	Toyokawa Tenflare		S06W05	Q	
						N07E03	5	0	0	390 Flux Units 04/		N07E03	E	
						S16E07	4	1	0	0837Z Duration 8		S16E07	E	
						N05E15	2	0	0	Minutes 05/0025Z.		N05E15	Q	
						S21E16	0	0	0			S21E16	Q	
						N10E17	0	0	0			N10E17	Q	
						N10E30	1	0	0			N10E30	Q	
						N17E30	2	0	0			N17E30	Q	
						S11E31	0	0	0			S11E31	Q	
						S19E38	0	0	0			S19E38	Q	
						S21E51	0	0	0			S21E51	Q	
126	06	05	268	233	005	N15W86	0	0	0		06	N15W86	Q	SOLALERT 06/XX
						N05W73	0	0	0			N05W73	Q	MAGQUIET
						N20W33	0	0	0			N20W33	Q	

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						S07W28	0	0	0	Presto 05/1445Z		S07W28	Q	
						N06W10	0	0	0	Soflare X1/3B N17W07		N06W10	E	
						N17W07	7	1	1	05/1359Z Duration 10		N17W07	E	
						N20E02	0	0	0	Minutes. Tenflare		N20E02	Q	
						N10E16	0	0	0	730 Flux Units 05/		N10E16	Q	
						N16E17	5	0	0	1407Z Duration 10		N16E17	Q	
						S11E18	0	0	0	Minutes.Presto		S11E18	Q	
						S08E31	0	0	0	Toyokawa 06/0028Z		S08E31	Q	
						S21E37	0	0	0	Tenflare 110 Flux		S21E37	Q	
						N13E70	0	0	0	Units 05/2252Z Dur-		N13E70	Q	
						N08E75	0	0	0	ation 50 Minutes.		N08E75	Q	
127	07	06	257	227	007	N05W85	0	0	0		07	N05W85	Q	SOLALERT 06/XX
						N20W44	0	0	0			N20W44	Q	MAGALERT 07/08
						S07W43	0	0	0			S07W43	Q	
						N06W23	2	0	0			N06W23	E	
						N16W19	3	0	0			N16W19	E	
						N19W12	0	0	0			N19W12	Q	
						N10E03	0	0	0			N10E03	Q	
						N15E03	0	0	0			N15E03	Q	
						S19E09	0	0	0			S19E09	Q	
						S08E17	0	0	0			S08E17	Q	
						S21E23	0	0	0			S21E23	Q	
						N14E57	0	0	0			N14E57	Q	
						S04E61	0	0	0			S04E61	Q	
						N09E63	0	0	0			N09E63	Q	
128	08	07	233	230	008	N21W61	0	0	0		08	N21W61	Q	SOLALERT 08/XX
						S05W60	1	0	0			S05W60	Q	MAGALERT 08/09
						S04W47	0	0	0			S04W47	Q	
						N07W39	5	0	0			N07W39	E	
						N17W33	5	0	0			N17W33	E	
						N17W10	0	0	0			N17W10	Q	
						N11W09	0	0	0			N11W09	Q	
						S07E05	0	0	0			S07E05	Q	
						S20E08	1	0	0			S20E08	Q	
						N19E14	0	0	0			N19E14	Q	
						N14E44	0	0	0			N14E44	Q	
						N09E50	1	0	0			N09E50	Q	
						S05E50	0	0	0			S05E50	Q	
129	09	08	268	222	005	S21W72	0	0	0	Presto 08/2348Z	09	S21W72	Q	SOLALERT 09/XX
						S05W71	1	0	0	Soflare M7/2B N09		S05W71	Q	MAGALERT 09/XX
						N20W70	0	0	0	E33 08/2157Z Duration		N20W70	Q	
						N06W50	5	0	0	103 Minutes.Tenflare		N06W50	E	
						N16W45	2	0	0	08/2207Z 910 Flux		N16W45	E	
						N08W35	0	0	0	Units Duration 98		N08W35	Q	
						N16W23	0	0	0	Minutes. Presto		N16W23	Q	
						N11W22	1	0	0	Toyokawa 08/2345Z		N11W22	Q	
						S07W09	0	0	0	Tenflare 1100 Flux		S07W09	E	
						S19W04	1	0	0	Units 08/2155Z		S19W04	Q	
						N09W01	0	0	0	Duration 100 Min.		N09W01	Q	
						N13E29	0	0	0			N13E29	Q	
						N07E33	6	1	0			N07E33	E	
						N09E55	0	0	0			N09E55	Q	
						S08E67	0	0	0			S08E67	Q	
130	10	09	264	215	035	S07W87	0	0	0	Presto 09/2220Z	10	S07W87	Q	SOLALERT 10/XX
						N19W86	0	0	0	Proton Event began		N19W86	Q	MAGALERT 10/11
						N06W65	2	0	0	19/1440Z 17 Protons		N06W65	E	
						N16W61	0	0	0	cm2/sec/ster at		N16W61	Q	
						N17W38	0	0	0	greater than 10MEV		N17W38	Q	
						N12W37	0	0	0	at 2000Z.Presto		N12W37	Q	
						S18W31	0	0	0	Toyokawa 09/0340Z		S18W31	Q	
						S20W17	0	0	0	Tenflare 350 Flux		S20W17	Q	
						N20W15	0	0	0	Units 09/0244Z		N20W15	Q	
						N14E17	0	0	0	Duration 12 Minutes		N14E17	Q	
						S04E21	0	0	0			S04E21	Q	
						N10E23	3	2	0			N10E23	E	
						N12E45	0	0	0			N12E45	Q	
						S06E56	0	0	0			S06E56	Q	
131	11	10	224	212	019	N05W80	2	1	0	Presto Tenflare 10/	11	N05W80	E	SOLALERT 11/XX
						N16W74	1	0	0	1200Z 2253 Flux Units		N16W74	Q	MAGALERT 11/XX
						N16W51	0	0	0	Duration 275 Minutes		N16W51	Q	
						N11W50	0	0	0	Presto Tenflare		N11W50	Q	
						N20W32	1	0	0	10/1351Z 400 Flux		N20W32	Q	
						S20W30	0	0	0	Units Duration 5 Min		S20W30	Q	
						N08W11	0	0	0			N08W11	Q	
						S17E01	0	0	0			S17E01	Q	
						N13E02	0	0	0			N13E02	Q	
						S04E06	0	0	0			S04E06	Q	
						N09E08	8	1	0			N09E08	A	
						N12E30	0	0	0			N12E30	Q	
						S06E41	0	0	0			S06E41	Q	
						N10E74	1	1	0			N10E74	Q	
132	12	11	308	222	032	N16W84	0	0	0		12	N16W84	Q	SOLALERT 12/XX
						N16W63	0	0	0			N16W63	Q	MAGALERT 12/13
						N12W61	0	0	0			N12W61	Q	
						N20W44	1	0	0			N20W44	Q	

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						N21W35	0	0	0			N21W35	Q	
						S21W28	0	0	0			S21W28	Q	
						N08W23	0	0	0			N08W23	Q	
						N14W11	0	0	0			N14W11	Q	
						N10W03	17	2	0			N10W03	A	
						S04W06	0	0	0			S04W06	Q	
						N12E08	0	0	0			N12E08	Q	
						N12E18	2	0	0			N12E18	Q	
						S06E29	1	0	0			S06E29	Q	
						N11E68	8	0	0			N11E68	A	
133	13	12	292	219	009	N17W76	0	0	0		13	N17W76	Q	SOLALERT 13/15
						N12W76	0	0	0			N12W76	Q	MAGNIL
						N22W54	0	0	0			N22W54	Q	
						S21W54	0	0	0			S21W54	Q	
						S22W39	0	0	0			S22W39	Q	
						N08W34	0	0	0			N08W34	Q	
						N13W23	0	0	0			N13W23	Q	
						S05W19	4	0	0			S05W19	Q	
						N10W17	2	0	0			N10W17	A	
						N12W06	0	0	0			N12W06	Q	
						N12E05	0	0	0			N12E05	Q	
						S28E08	0	0	0			S28E08	Q	
						S07E16	0	0	0			S07E16	Q	
						N04E54	0	0	0			N04E54	Q	
						N12E59	5	0	0			N12E59	A	
134	14	13	188	217	011	S22W55	0	0	0	Presto 13/0422Z	14	S22W55	Q	SOLALERT 14/16
						N09W47	0	0	0	Soflare X1/3B N12		N09W47	Q	MAGQUIET
						N12W36	0	0	0	E58 13/0350Z In		N12W36	Q	
						N11W28	2	0	0	Progress. Presto		N11W28	A	
						N11W08	0	0	0	13/0525Z Tenflare		N11W08	E	
						S29W04	0	0	0	4500 Flux Units		S29W04	Q	
						S07E02	0	0	0	13/0330Z Duration		S07E02	Q	
						N07E39	0	0	0	100 Minutes.		N07E39	Q	
						N14E41	4	0	1			N14E41	A	
						N15E52	1	1	0			N15E52	Q	
						S25E81	0	0	0			S25E81	Q	
135	15	14	242	228	012	N08W63	1	0	0	Presto Tenflare	15	N08W63	Q	SOLALERT 15/XX
						N13W49	0	0	0	14/0315Z 470 Flux		N13W49	Q	MAGALERT MINOR 15/16
						N10W43	7	1	0	Units Duration 8		N10W43	A	
						N12W23	0	0	0	Minutes.Tenflare		N12W23	Q	
						S29W15	0	0	0	14/0835Z 120 Flux		S29W15	Q	
						S07W13	0	0	0	Units In Progress		S07W13	Q	
						N06E26	0	0	0			N06E26	Q	
						N12E29	6	1	0			N12E29	A	
						N13E39	4	0	0			N13E39	A	
						S27E67	0	0	0			S27E67	Q	
136	16	15	216	214	035	N07W77	0	0	0	Presto Proton Event	16	N07W77	Q	SOLALERT 16/18
						N17W63	0	0	0	15/0300Z 10 Protons		N17W63	Q	MAGALERT MINOR 16
						N10W56	3	0	0	cm2/sec/ster at		N10W56	A	
						N11W36	2	0	0	greater than 10 MEV		N11W36	Q	
						S07W24	0	0	0	15/0600Z. 19 Protons		S07W24	Q	
						S26E13	0	0	0	at 0810Z.		S26E13	Q	
						N12E15	3	0	0			N12E15	A	
						N15E27	3	0	0			N15E27	A	
						S30W27	0	0	0			S30W27	Q	
						S25E54	0	0	0			S25E54	Q	
137	17	16	204	214	040	N10W69	3	0	0	Presto SoflareX1/3B	17	N10W69	A	SOLALERT 17/18
						N12W48	1	0	0	N14E14 16/0734Z		N12W48	Q	MAGALERT 17/19
						S06W39	0	0	0	Duration 117 Min.		S06W39	Q	
						S26W02	1	0	0	Tenflare 1400 Flux		S26W02	Q	
						N12E03	4	0	1	Units 16/0810Z Dur-		N12E03	A	
						N15E16	3	0	0	ation 83 Min. PCA		N15E16	A	
						S25E42	5	0	0	began 16/2015Z 2.9		S25E42	Q	
										db. Proton Event				
										began 16/1355Z Max				
										130 Protons/cm2/sec/				
										ster at greater than				
										10 MEV 16/2000Z.				
138	18	17	165	203	014	N12W62	0	0	0	Presto SSC 17/2303Z	18	N12W62	Q	SOLALERT 18/XX
						S06W50	0	0	0	Sydney. Presto SSC		S06W50	Q	MAGALERT 18/XX
						S24W16	1	0	0	17/2303Z 40 Gammas		S24W16	Q	
						N12W10	2	0	0	Boulder.		N12W10	Q	
						N15E03	3	0	0			N15E03	A	
						S24E29	0	0	0			S24E29	Q	
139	19	18	172	190	036	N12W75	0	0	0		19	N12W75	Q	SOLALERT 19/XX
						S07W65	0	0	0			S07W65	Q	MAGALERT 19/20
						S25W28	3	0	0			S25W28	Q	
						N13W25	12	0	0			N13W25	A	
						N16W13	3	0	0			N16W13	E	
						N30W06	0	0	0			N30W06	Q	
						S24E16	1	0	0			S24E16	E	
						N34E73	0	0	0			N34E73	Q	

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140	20	19	163	189	015	N11W90	1	0	0		20	N11W90	Q	SOLALERT MINOR 20
						S07W80	0	0	0			S07W80	Q	MAGNIL
						S27W40	1	0	0			S27W40	Q	
						N12W37	3	0	0			N12W37	E	
						N15W26	3	0	0			N15W26	E	
						S25E04	0	0	0			S25E04	E	
141	21	20	129	176	029	S06W91	0	0	0	Presto Sydney 20/	21	S06W91	Q	SOLNIL
						S27W56	0	0	0	0620Z Small SC 20/		S27W56	Q	MAGQUIET
						N11W52	3	0	0	0519Z		N11W52	E	
						N15W42	3	0	0			N15W42	E	
						S09W40	0	0	0			S09W40	Q	
						S25W09	1	0	0			S25W09	E	
						S08E74	0	0	0			S08E74	Q	
142	22	21	194	171	013	N12W67	2	0	0		22	N12W67	E	SOLQUIET
						S27W67	0	0	0			S27W67	Q	MAGQUIET
						S11W59	0	0	0			S11W59	Q	
						N16W53	0	0	0			N16W53	E	
						S10E56	0	0	0			S10E56	Q	
						S09W53	0	0	0			S09W53	Q	
						S25W20	2	0	0			S25W20	E	
						N13W03	0	0	0			N13W03	Q	
						S15E03	0	0	0			S15E03	Q	
						N17E45	1	0	0			N17E45	Q	
						N13E62	0	0	0			N13E62	Q	
						N03E74	0	0	0			N03E74	Q	
						N12E84	0	0	0			N12E84	Q	
143	23	22	183	168	008	S27W83	0	0	0	Presto Tenflare	23	S27W83	Q	SOLQUIET
						N13W82	0	0	0	140 Flux Units		N13W82	E	MAGQUIET
						N16W69	1	1	0	22/0623Z Duration 9		N16W69	E	
						S25W33	0	0	0	Minutes		S25W33	E	
						N13W17	0	0	0			N13W17	Q	
						S29W13	0	0	0			S29W13	Q	
						N30E00	0	0	0			N30E00	Q	
						N17E31	2	0	0			N17E31	Q	
						S11E36	0	0	0			S11E36	Q	
						N16E45	0	0	0			N16E45	Q	
						S09E45	0	0	0			S09E45	Q	
						N04E60	0	0	0			N04E60	Q	
						N14E68	0	0	0			N14E68	Q	
144	24	23	112	156	015	N15W79	0	0	0		24	N15W79	E	SOLQUIET
						S25W49	2	0	0			S25W49	E	MAGQUIET
						N17E19	3	0	0			N17E19	E	
						S15E31	0	0	0			S15E31	Q	
						S08E33	0	0	0			S08E33	Q	
						N03E49	1	0	0			N03E49	Q	
						N13E56	2	0	0			N13E56	E	
145	25	24	150	166	018	N15W92	3	1	0		25	N15W92	Q	SOLQUIET
						S22W85	12	0	0			S22W85	E	MAGQUIET
						S24W64	0	0	0			S24W64	E	
						N17E05	0	0	0			N17E05	E	
						S12E15	0	0	0			S12E15	Q	
						S08E18	0	0	0			S08E18	Q	
						N04E19	0	0	0			N04E19	Q	
						N03E35	5	0	0			N03E35	E	
						N12E41	0	0	0			N12E41	Q	
						S07E73	0	0	0			S07E73	Q	
146	26	25	145	173	020	S24W76	0	0	0		26	S24W76	E	SOLQUIET
						S01W45	0	0	0			S01W45	Q	MAGQUIET
						N17W09	0	0	0			N17W09	E	
						S11W03	0	0	0			S11W03	Q	
						N04E20	6	1	0			N04E20	E	
						N14E27	1	0	0			N14E27	E	
						S06E62	1	0	0			S06E62	Q	
						N18E66	0	0	0			N18E66	Q	
147	27	26	225	169	010	S24W90	0	0	0		27	S24W90	E	SOLQUIET
						N18W21	2	0	0			N18W21	E	MAGQUIET
						S11W17	0	0	0			S11W17	Q	
						N04W08	0	0	0			N04W08	Q	
						N18W07	0	0	0			N18W07	Q	
						S13W05	0	0	0			S13W05	Q	
						S08E00	0	0	0			S08E00	Q	
						N04E05	3	0	0			N04E05	E	
						N15E14	0	0	0			N15E14	Q	
						S06E49	0	0	0			S06E49	Q	
						N20E52	0	0	0			N20E52	Q	
						N16E78	0	0	0			N16E78	Q	
148	28	27	118	172	008	N18W32	3	0	0		28	N18W32	E	SOLQUIET
						S11W32	0	0	0			S11W32	Q	MAGQUIET
						N03W09	4	0	0			N03W09	E	
						N14E03	0	0	0			N14E03	Q	
						S07E35	1	0	0			S07E35	E	
						N13E64	0	0	0			N13E64	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
149	29	28	116	177	015	N18W46	1	0	0		29	N18W46	E	SOLQUIET
						S11W24	0	0	0			S11W24	Q	MAGQUIET
						N04W22	1	0	0			N04W22	E	
						N14W12	0	0	0			N14W12	Q	
						S06E22	3	0	0			S06E22	E	
						N16E53	0	0	0			N16E53	Q	
150	30	29	130	166	008	N18W59	1	0	0		30	N18W59	E	SOLOUIET
						S12W55	0	0	0			S12W55	Q	MAGQUIET
						S12W37	0	0	0			S12W37	0	
						N04W36	2	0	0			N04W36	E	
						N14W25	0	0	0			N14W25	0	
						S06E07	1	0	0			S06E07	E	
						N09E19	0	0	0			N09E19	0	
						N14E37	0	0	0			N14E37	0	
151	31	30	171	154	009	N18W74	1	0	0		31	N18W74	E	SOLOUIET
						S13W69	0	0	0			S13W69	0	MAGQUIET
						S11W69	0	0	0			S11W69	0	
						S12W50	0	0	0			S12W50	0	
						N03W49	0	0	0			N03W49	E	
						N10W38	2	0	0			N10W38	0	
						S06W04	0	0	0			S06W04	E	
						N06E17	0	0	0			N06E17	0	
						N13E24	2	0	0			N13E24	E	
152	01	31	166	152	010	N18W85	0	0	0		01	N18W85	E	SOLOUIET
						S13W82	0	0	0			S13W82	0	MAGQUIET
						N02W62	1	0	0			N02W62	E	
						S06W18	0	0	0			S06W18	E	
						N06E03	0	0	0			N06E03	0	
						N06E04	0	0	0			N06E04	0	
						N14E10	0	0	0			N14E10	E	
						N06E13	0	0	0			N06E13	0	
						N25E50	0	0	0			N25E50	0	
						N21E75	0	0	0			N21E75	0	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

1980 FINAL — 1981 PROVISIONAL*

DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	152	101	78	208	151	188	171	147	148	147	132	112
2	124	108	63	226	135	218	176	141	132	182	170	133
3	128	97	65	232	139	204	152	122	154	169	148	156
4	141	83	65	233	121	217	146	113	126	183	151	152
5	150	96	53	188	96	201	131	94	133	141	157	162
6	131	98	72	179	116	196	126	71	172	130	132	178
7	149	97	64	136	135	175	108	89	158	130	152	171
8	150	87	90	140	173	201	124	115	129	142	195	177
9	164	84	125	108	106	158	117	126	124	124	199	158
10	177	86	130	119	235	158	145	120	157	127	199	148
11	172	87	181	125	260	144	148	123	178	130	200	169
12	166	98	174	128	256	120	178	126	185	128	193	183
13	161	105	172	133	213	103	185	123	153	127	197	149
14	136	128	193	100	232	108	213	106	142	128	180	140
15	129	161	192	83	224	105	217	106	124	110	212	141
16	134	198	196	98	202	112	237	81	129	128	197	127
17	129	211	190	93	158	109	198	72	120	109	213	124
18	146	241	195	114	142	113	183	79	131	95	214	119
19	166	220	185	137	137	125	166	78	138	86	203	100
20	179	227	179	150	167	112	171	88	133	120	199	77
21	191	229	152	134	155	107	170	105	142	135	170	99
22	196	201	139	147	164	119	178	99	136	134	122	106
23	190	184	154	158	140	112	177	115	98	121	108	93
24	193	155	122	178	127	128	191	120	124	125	92	96
25	179	151	109	168	118	127	200	115	137	142	119	93
26	166	138	101	209	119	140	208	120	169	133	90	105
27	185	117	98	231	134	168	206	115	175	126	73	79
28	188	127	124	181	136	167	206	142	170	135	72	93
29	149	118	158	166	173	148	208	165		160	106	92
30	97	108	184	149	184	153	187	174		184	92	83
31		81	194		178		182	159		108		92
MEAN	157.3	136.3	135.4	155.0	164.7	147.9	174.4	114.4	143.5	133.8	156.2	126.0

1980 YEARLY MEAN = 154.6

*ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1980 — 1981

DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	191.2	160.0*	131.9	213.2*	171.1	226.3	223.0	189.7	207.3	224.4*	210.8*	188.0
2	184.0	154.9	131.8	224.5*	167.9*	234.2	213.3	181.4	210.1	230.6*	211.2*	193.4
3	178.8	147.7	133.2	232.1	174.1	241.6	197.9	173.1	205.4*	238.9*	221.2	206.5*
4	181.5	146.7	130.9	225.1	175.2	249.9*	199.4	166.8	197.5	245.6*	219.7	221.2
5	170.4	152.5*	132.6	215.6*	182.6	263.3*	186.4	161.8	187.8	227.3	226.2	237.5
6	172.4	150.1	143.2*	210.9	185.3*	273.9*	171.0	157.4	185.4*	212.7	235.7	231.2
7	165.7*	152.5	142.3	213.0	198.7*	272.7	176.4	168.6*	180.5*	201.4	242.3	234.2
8	172.4*	152.8	146.4	200.9	212.1*	266.2*	169.3	169.2	179.1	200.6*	268.8*	222.4*
9	174.3*	155.2	156.5	189.7	223.4*	255.4*	175.1	167.0	176.7	202.9	287.7	218.6
10	176.1	162.3*	173.5	188.7	232.7	257.2*	180.5	164.6	185.2	203.1	268.8*	217.7*
11	182.9	173.3	184.1	188.1	240.7	256.0*	203.5*	160.5	186.4*	199.7	272.1	228.1*
12	139.3*	178.0	189.6	178.9	247.8*	233.2*	240.5*	156.6	190.6*	188.8	251.9	223.4
13	186.5	196.8	193.3*	171.9	253.3*	226.8	244.2	150.1	197.8	202.1	254.9*	221.3
14	188.8*	209.7	191.7*	163.4	251.1	218.8*	253.2	153.9	200.3	208.9	256.5*	232.5
15	186.4	218.4	191.9	153.8	237.0	205.2*	266.2	149.8	193.5	206.3*	254.9*	223.9
16	193.3	235.4*	195.7	159.6	214.9	191.1	273.0	152.5	186.9	194.9	247.5*	218.9
17	197.4	250.2*	197.7*	158.0	201.1	181.6*	254.8	155.3	188.1*	181.5	242.7	207.6
18	207.6	249.8*	204.3*	154.4	200.6	174.9	255.1	161.0	190.2*	180.0	229.2	194.4
19	219.8*	255.2*	201.4	160.1*	203.3	172.4	238.5	165.4	178.8	175.1	214.9	186.6*
20	227.9*	258.0	193.0	167.5	200.5	161.6	235.9*	159.9*	188.3	182.7	200.9*	180.0
21	220.0	254.0	194.1	159.6	204.2	161.8	224.8	156.6	189.9*	189.5	196.1	180.4
22	250.0*	248.7	178.3*	178.6	205.3*	171.4	231.2	156.4	199.5	189.4*	191.5	169.3*
23	251.5	235.1	174.1	188.7*	196.1	167.2	226.0	156.8	217.9*	188.0*	204.9	159.6
24	245.9*	222.2	164.3*	191.3	192.5	174.9*	223.6	157.3	231.5*	191.4	203.0*	169.8
25	238.8*	206.4	153.8*	183.8	182.9	176.4*	220.7	169.2*	233.8	199.3	203.8*	177.2
26	226.3	197.4	154.6	184.3	180.3*	189.6	220.1	174.6	238.5	198.6*	198.8	173.0
27	212.6	188.4	159.3	183.2*	177.2	185.3	220.3	175.8*	235.4	197.6	194.7*	177.0
28	199.7*	169.5	168.3	185.2	178.2*	191.4	231.5*	197.2*	224.9*	203.7*	178.2*	181.3
29	188.8	155.3	178.5	178.2*	186.4	206.1*	217.2	204.2	.	212.4*	176.9	170.6
30	183.4	143.3	191.4*	174.1	201.8	216.3	209.9	209.1	.	208.2	175.3	164.6*
31	.	136.5	198.7*	.	211.5	.	199.0	209.1	.	214.0*	.	156.1
MEAN	199.3	190.8	170.3	185.9	202.9	213.4	218.8	169.0	199.5	203.2	224.7	198.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

MAY 1981

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	121	19	112	160	185.0	588	349	183	188.0	175	151		36	18
2	122	20	133	161	190.4	602	346	192	193.4	372	158		38	20
3	123	21	156	197	203.0*	608			206.5*				38	20
4	124	22	152	166	217.5	610			221.2					
5	125	23	162	195	233.3	627	382	230	237.5	242	175		38	22
6	126	24	178	208	227.1	616	368	228	231.2	237	175		40	23
7	127	25	171	194	229.8	624	384	231	234.2	221	166		41	23
8	128	26	177	186	218.3*	616	364	225	222.4*	237	160		40	26
9	129	27	158	158	214.5	625	369	217	218.6	205	153		39	30
10	130	01	148	168	213.4*				217.7*					
11	131	02	169	163	223.6*	627	396	242	228.1*	227	163		35	22
12	132	03	183	181	218.8	602	365	219	223.4	221	159			23
13	133	04	149	163	216.7				221.3					
14	134	05	140	162	227.5	604	371	223	232.5	217	153			20
15	135	06	141	156	219.1	595	374	217	223.9	210	140		40	23
16	136	07	127	141	214.0	600	368	221	218.9	207	149		53	53
17	137	08	124	134	202.9	593			207.6				48	
18	138	09	119	115	189.8	593	349	200	194.4	200	145		51	21
19	139	10	100	100	182.2*	596	342	189	186.6*	183	139		39	21
20	140	11	77	79	175.8	595	327		180.0	169	137		50	18
21	141	12	99	93	176.0	604	317	177	180.4	172	134		83	55
22	142	13	106	117	165.2*	586	269	163	169.3*	164	126		37	34
23	143	14	93	92	155.6	587	319	170	159.6	157	123		39	18
24	144	15	96	109	165.5	604	332	178	169.8	164	115		38	20
25	145	16	93	121	172.7				177.2					
26	146	17	105	121	169.2				173.8					
27	147	18	79	122	172.3	577	318	182	177.0	167	131		38	14
28	148	19	93	112	176.5	589	337	185	181.3	172	133		37	14
29	149	20	92	96	166.0	489	326	174	170.6	161	128		30	16
30	150	21	83	100	160.1*	588	321	168	164.6*	158	131		32	14
31	151	22	92	80	151.8	556	312	162	156.1	146	123		37	15
MEAN			126.0	140.3	194.6	596	346	198	198.9	199	144		41	23

*Adjusted for burst.
NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Jun 78	95.1	89	88.0	84	96.5	90	146.8	141
Jul	70.4	97	58.1	92	84.2	97	135.2	147
Aug	58.1	104	48.1	98	64.3	104	116.9	153
Sep	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153*	136.0	144	144.1	151	190.8	197
Aug	135.4	150*	133.0	144	121.9	150	170.3	196
Sep	155.0	150*	150.0	146	138.8	152	185.9	198
Oct	164.7	150*	160.8	149	157.1	154	202.9	200
Nov	147.9	148*	149.9	148	168.5	153	213.4	199
Dec	174.4	148(± 6)*	167.5	148	174.3	153	218.8	---
Jan 81	114.4†	148(±13)*	115.4	148	120.5	153	169.0	---
Feb	143.5†	147(±14)*	143.7	147	153.5	152	199.5	---
Mar	133.8†	144(±14)*	149.2	144	157.5	149	203.2	---
Apr	156.2†	141(±16)*	169.2	141	180.7	146	224.7	---
May	126.0†	138(±18)*	---	139	152.8	143	198.9	---
Jun	---	136(±19)*	---	136	---	140	---	---
Jul	---	134(±20)*	---	134	---	138	---	---
Aug	---	133(±21)*	---	133	---	137	---	---
Sep	---	132(±21)*	---	132	---	136	---	---
Oct	---	130(±21)*	---	130	---	134	---	---
Nov	---	127(±22)*	---	127	---	131	---	---

*An asterisk denotes either a value of the observed 12-month running mean or the predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

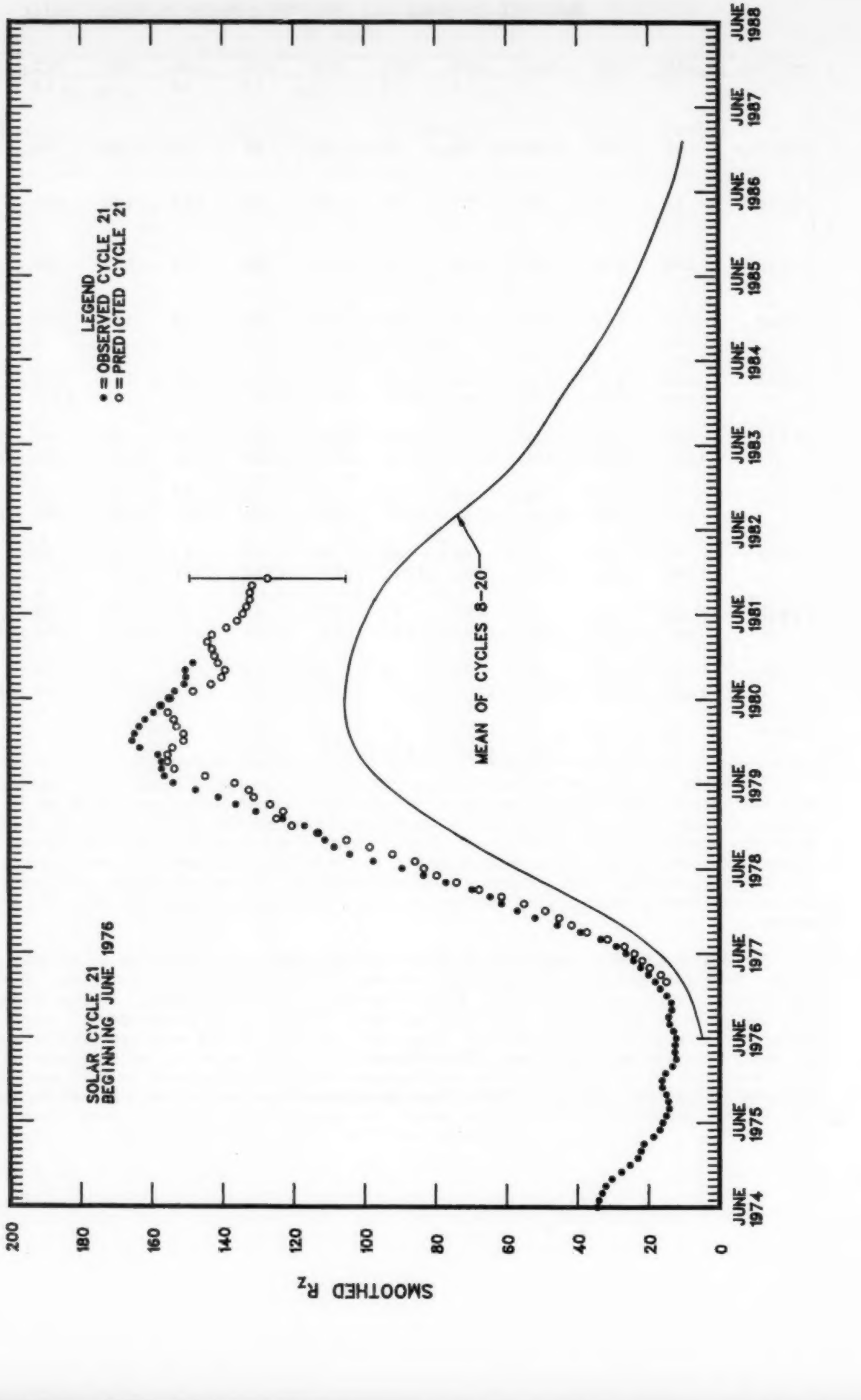
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	[148 (6)
1981	148 (13)	147 (14)	144 (14)	141 (16)	138 (18)	136 (19)	134 (20)	133 (21)	132 (21)	130 (21)	127 (22)	123 (22)
1982	120 (20)	117 (19)	114 (18)	111 (17)	108 (17)	105 (16)	101 (15)	96 (13)	92 (13)	87 (12)	83 (11)	79 (11)
1983	75 (12)	72 (14)	70 (15)	68 (16)	66 (18)	63 (19)	61 (21)	60 (23)	59 (24)	58 (26)	58 (26)	57 (27)
1984	56 (27)	54 (26)	51 (26)	48 (27)	46 (28)	45 (29)	44 (29)	43 (29)	41 (28)	40 (27)	38 (26)	36 (26)
1985	35 (26)	34 (25)	33 (24)	33 (24)	32 (24)	30 (23)	29 (22)	28 (21)	27 (21)	26 (21)	25 (22)	25 (22)
1986	24 (23)	23 (23)	22 (23)	21 (22)	19 (21)	18 (20)	16 (19)	15 (19)	15 (17)	14 (16)	14 (15)	13 (13)
1987	13 (12)	14 (11)	14 (11)	15 (12)	16 (13)	17 (14)	18 (15)					

The table gives observed *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980 and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1981 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1981). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

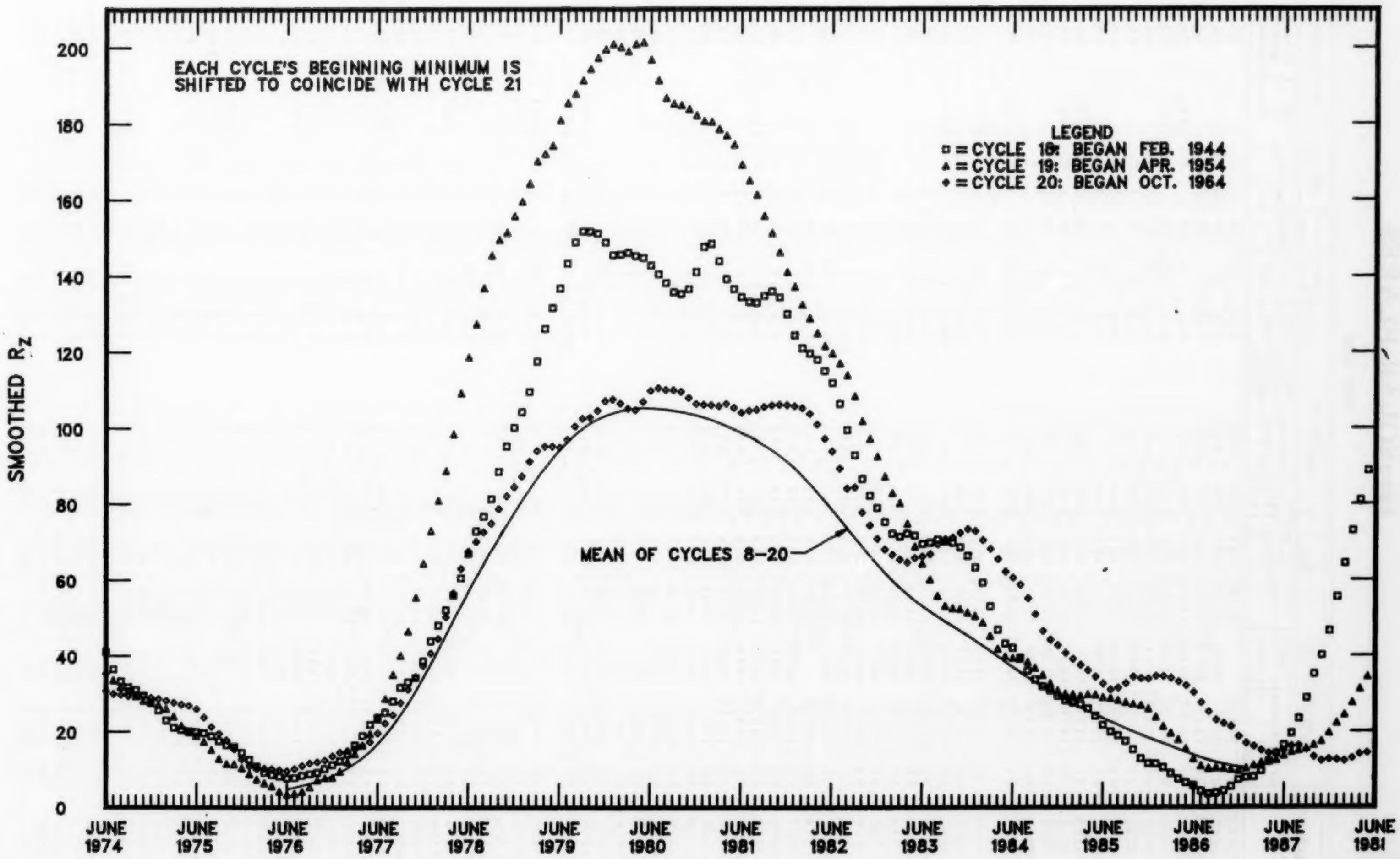
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*<u>MAXIMUM OF SUNSPOT CYCLE 21</u>. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



Hα SOLAR FLARES

MAY 1981

OBSERVATORY	OBSERVED UT DAY	OBSERVED UT START	OBSERVED UT MAX. PHASE	OBSERVED UT END	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION CENTRAL DISTANCE	LOCATION HALE PLAGE REGION	LOCATION CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEASUREMENTS MEAS. AREA Mil. of Disk	MEASUREMENTS CORR. AREA Sq. Deg.	REMARKS
LEAR	01	0112E		0120	N10	E11	.308		1.3	80D	SF	3	C		22		
LEAR	01	0344	0348	0402	N07	E58	.857		5.5	18	SF	3	C		24		
LEAR	01	0822	0823	0834	N13	E57	.858		5.6	12	SF	3	C		29		
PEKG	01	0832E	0832U	0834D	N08	E54	.821		5.4	20	SF		P	0832	25	.4	E
PEKG	01	0832E	0832U	0844D	N10	E63	.901		6.1	120	SN		P	0832	42		E
BOUL	01	1341E	1341U	1350	S08	E28	.471		3.7	90	SF	3	C		40		
BOUL	01	1353	1353U	1411	N08	E46	.737		5.0	18	SF	3	C		40		
BOUL	01	1528	1528U	1555	N08	E46	.737		5.1	27	SF	3	C		60		
BOUL	01	1605E	1605U	1611	N08	E46	.737		5.1	60	SF	3	C		40		
BIGB	01	1717	1734	1800	N18	E60	.892		6.2	43	SN	2	C	1734	60	1.2	
BIGB	01	1815	1820	1924	N08	E49	.770		5.4	69	SN	2	C	1820	70	1.1	
PALE	01	2137E	2138U	2205	N05	W10	.235		1.2	28D	1N	3	C		381		
PALE	01	2138	2138	2153	N10	W02	.247		1.8	15	SN	3	C		34		
PEKG	01	2342E	2352	2402D	N06	E46	.732		5.4	20D	SF		P	2352	42	.6	E
PEKG	02	0122	0127	0152D	N15	E46	.759		5.5	30D	SN		C	0127	50	.8	ET
LEAR	02	0124	0127	0140	N14	E46	.756		5.5	16	SF	3	C		50		
PEKG	02	0345	0350	0355	N05	W24	.433		30.4	10	SN		P	0350	55	.6	D
LEAR	02	0346	0350	0359	N04	W24	.427		30.4	13	SB	3	C		29		
LEAR	02	0350	0351	0408	N13	E44	.730		5.5	18	SN	3	C		38		
LEAR	02	0418	0419	0423	N05	W24	.433		30.4	5	SF	3	C		55		
LEAR	02	0552	0607	0628	N13	E43	.719		5.5	36	SN	3	C		67		
LEAR	02	0657	0658	0707	N23	W30	.641		30.0	10	SN	3	C		58		
LEAR	02	0910	0913	0919	N23	W31	.651		30.1	9	SF	3	C		49		
MANI	02	0915E	0915U	0920D	S10	W40	.644		29.4	50	SF	1	V		20	.3	
ISTA	02	0915E		0927	N24	W31	.659		30.1	120	SN						E
RAMY	02	1138	1139	1211	N15	E40	.694		5.5	33	SN	3	C		57		
RAMY	02	1328	1346	1409	N14	E38	.667		5.4	41	SN	3	C		49		
BIGB	02	1413E	1420	1720	S20	E81	.985		8.7	187D	SN	3	P	1420	50		
RAMY	02	1533	1534	1538	N08	E35	.601		5.3	5	SF	3	C		23		
PALE	02	1714E	1714U	1725	N14	E35	.631		5.3	11D	SF	3	C		23		
RAMY	02	1717	1720	1733	N14	E35	.631		5.3	16	SF	3	C		46		
BIGB	02	1728	1731	1751	N17	E61	.897		7.3	23	1N	3	C	1731	120	2.6	
RAMY	02	1729	1730	1756	N17	E60	.890		7.2	27	1N	3	C		161		
PALE	02	1729	1731	1742	N17	E61	.897		7.3	13	1N	3	C		142		
BIGB	02	1940	1941	2041	N05	E30	.520		5.1	61	SN	3	C	1941	90	1.1	
PALE	02	1940	1945	1953	N05	E23	.505		5.0	13	SN	3	C		57		
PALE	02	2024E	2025U	2048	N14	E34	.619		5.4	24D	SF	3	C		38		
BIGB	02	2026	2028	2108	N14	E34	.619		5.4	42	SF	3	C	2028	90	1.2	
BIGB	02	2238	2241	2257	S11	W51	.777		29.1	19	SF	3	C	2241	80	1.3	
BIGB	03	0022	0023	0046D	S11	W50	.766		29.3	24D	SF	3	P	0023	70	1.1	
PEKG	03	0030	0032U	0035	N07	E32	.556		5.4	5	SF		P	0034	76	.9	E
LEAR	03	0031	0031	0039D	N06	E31	.538		5.3	8D	SN	3	C		3		
LEAR	03	0202	0209	0222	N13	E32	.588		5.5	20	SF	3	C		63		
PALE	03	0203E	0203U	0254D	N14	E31	.582		5.4	45D	SF	3	C		32		D
PEKG	03	0400	0423U	0448	N06	E29	.510		5.3	48	SN		C	0423	50	.6	E
RAMY	03	1157	1200	1207	N16	E50	.802		7.2	10	SF	3	C		18		
RAMY	03	1158	1200	1220	N18	E26	.556		5.4	22	SF	3	C		31		
HOLL	03	1503	1517	1526D	N03	E13	.346		5.1	23D	SN	3	C		68		
BIGB	03	1515	1520	1537	N04	E18	.337		5.0	22	SF	3	C	1520	50	.5	
HOLL	03	1549	1550	1608	N06	E22	.409		5.3	19	SN	3	C		71		
PALE	03	1842	1849	1900	N08	E21	.409		5.4	18	SF	3	C		28		
HOLL	03	1842	1849	1902	N07	E22	.416		5.4	20	SF	3	C		43		
HOLL	03	1846	1847	1859	N14	E23	.486		5.5	13	SF	3	C		25		
BIGB	03	1847	1848	1855	N14	E23	.412		5.5	8	SF	3	C	1848	60	.7	
PALE	03	1847	1848	1900	N14	E23	.486		5.5	13	SF	3	C		30		
HOLL	03	2037	2038	2054	N07	E22	.416		5.5	17	SF	3	C		39		
PALE	03	2038	2041	2048	N08	E19	.382		5.3	10	SF	3	C		37		
BIGB	03	2125	2127	2156	N15	E44	.738		7.2	31	1N	3	C	2127	170	2.4	
HOLL	03	2125	2128	2157	N13	E45	.741		7.3	32	1N	3	C		251		
PALE	03	2127	2127	2143	N15	E44	.738		7.2	16	SN	3	C		91		
PALE	03	2127	2127	2131	N18	E46	.770		7.3	4	SN	3	C		91		
HOLL	03	2245	2301	2342	N06	E17	.337		5.2	57	SN	3	C		59		
PALE	03	2245	2256	2315	N07	E16	.332		5.1	30	SF	3	C		45		
PEKG	03	2304E	2305	2308	N05	E17	.329		5.2	4D	SN		C	2304	42	.5	EH
HOLL	04	0004	0012	0044	N06	E16	.322		5.2	40	SF	3	C		108		
HOLL	04	0018	0020	0030	N16	E46	.762		7.5	12	SF	3	C		31		
LEAR	04	0019	0021	0026	N16	E43	.731		7.2	7	SF	3	C		24		
LEAR	04	0036	0039	0120D	N14	E16	.405		5.2	44D	1B	3	C		403		D
PALE	04	0048	0051	0100	N07	E15	.317		5.2	12	SF	3	C		34		

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HOLL	04	0113	0122	0130	N16	E44	.741		7.4	11	SF	2	C		53		
PEKG	04	0236	0252	0310	N07	E18	.358		5.5	34	SN		C	0252	42	.4	E
LEAR	04	0238	0250	0305	N05	E14	.285		5.2	27	SN	3	C		43		
PALE	04	0254E	0254U	0315	N08	E16	.340		5.3	21D	SF	3	C		62		
MANI	04	0600E	0605U	0647D	N07	E28	.500		6.4	47D	1N	1	V		220	2.6	E
ATHN	04	0603	0608	0618D	N07	E13	.291		5.2	15D	SB	3	C		111		D
ATHN	04	0835	0841	0943	N16	E20	.470		5.9	68	SB	3	C		175		
ATHN	04	0835	0841	0945	N05	E27	.476		6.4	70	SB	3	C		95		
LEAR	04	0836	0833	0920D	N14	E16	.405		5.6	44D	1B	3	C		403		D
MANI	04	0838E	0840U	0853D	N16	E13	.460		5.8	21D	1B	1	V		310	3.6	F
PEKG	04	0839E	0843	0910	N14	E17	.416		5.6	31D	2B		C	0843	631	7.1	CFU
HOLL	04	1430	1430	1442	N17	E13	.415		5.6	12	SF	3	C		33		
RAMY	04	1446	1450	1514	N17	E12	.407		5.5	28	SN	3	C		54		
HOLL	04	1447	1450	1511	N17	E12	.407		5.5	24	SN	3	C		48		
HOLL	04	1450	1451	1502	N05	E06	.186		5.1	12	SF	3	C		51		
BIGB	04	1916	1917	1936	S07	W17	.296		3.5	20	SF	2	C	1917	70	.8	
HOLL	04	1917	1919	1929	S05	W17	.292		3.5	12	SN	3	C		73		
HOLL	04	2101	2107	2133	N12	E11	.330		5.7	32	SN	3	C		199		
BIGB	04	2102	2106	2143	N13	E10	.335		5.6	47	SN	2	C	2106	90	.9	
HOLL	04	2122	2133	2147	N09	E29	.525		7.1	25	SF	3	C		41		
PALE	05	0111	0113	0149	N16	E07	.358		5.6	38	SN	3	C		73		
PEKG	05	0112	0114	0117	N13	E03	.414		5.7	5	SN		C	0116	76	.8	E
HOLL	05	0112	0114	0127D	N17	E09	.384		5.7	15D	SN	2	C		44		
PEKG	05	0128	0130	0150	N14	E07	.327		5.6	22	SF		C	0130	55	.6	E
MITK	05	0244	0246	0256	N18	E06	.384		5.6	12	SN		C	0246			E
LEAR	05	0245	0246	0253	N14	E06	.321		5.6	14	SN	3	C		84		
PALE	05	0245	0246	0301	N18	E05	.380		5.5	16	SN	3	C		128		
LEAR	05	0508	0529	0539	N15	E01	.322		5.3	31	SN	3	C		54		
PEKG	05	0510E	0518	0538	N17	E00	.355		5.2	28D	SN		P	0520	80	.9	E
ISTA	05	0545		0552	S03	E82	.990		11.4	7	SF						AG
ISTA	05	0625		0716	N14	E08	.333		5.9	51	SF						E
ISTA	05	0643		0654	N18	E29	.587		7.5	11	1B						U
ISTA	05	0645E		0645	S18	E46	.734		8.7		SF						3
ISTA	05	0705		0743	N18	E29	.587		7.5	38	1B						U
LEAR	05	0849	0853	0907	N17	E28	.568		7.5	18	SN	3	C		100		
RAMY	05	1355	1403	1543	N14	E02	.307		5.7	114	3B	3	C		812		D
HOLL	05	1359	1409	1413D	N17	W01	.355		5.5	14D	3B	2	C		1363		D
BIGB	05	1407E	1408	1537	N15	E10	.362		6.3	90D	1B	2	P	1408	410	4.2	
RAMY	05	1446	1447	1452	S19	E30	.545		7.9	6	SF	3	C		34		
RAMY	05	1513	1516	1524	N17	E18	.453		7.0	11	SF	3	C		43		
RAMY	05	1555	1553	1605	N17	E24	.523		7.5	10	SF	3	C		22		
BIGB	05	1614	1618	1635	S02	E77	.974		11.5	21	SF	2	C	1618	70		
RAMY	05	1703	1703	1710	N18	E20	.491		7.2	7	SF	3	C		55		
BIGB	05	1844	1847	1907	N01	E13	.233		6.8	23	SF	2	C	1847	70	.7	
BIGB	05	1857	1859	1904	N07	E73	.983		11.7	7	SB	2	C	1859	50		
BIGB	05	2151	2151	2223	N18	W04	.377		5.6	32	SN	3	C	2151	80	.8	
HOLL	05	2232	2234	2241	N17	W06	.368		5.5	9	SF	3	C		64		
HOLL	05	2254	2259	0010D	N18	W04	.377		5.7	76D	2B	3	C		721		
BIGB	05	2255	2301	2343	N18	W04	.377		5.7	48	1B	3	C	2301	310	3.2	
MANI	05	2256E	2300U	2325D	N17	W06	.368		5.5	29D	1B	1	V		350	3.9	FU
BIGB	05	2256	2312	2345D	N15	E08	.348		6.6	49D	1N	3	P	2312	480	5.0	
HOLL	05	2300	2306	0010D	N17	E19	.469		7.4	70D	1N	3	C		326		
MANI	05	2305E	2310U	2355D	N18	E10	.405		6.7	50D	1N	1	V		450	5.0	FU
LEAR	05	2320E	2320U	0003	N18	W05	.380		5.6	49D	1F	3	C		336		
LEAR	06	0057	0058	0104	N05	W11	.242		5.2	7	SF	3	C		21		
LEAR	06	0244	0244	0254	N18	W09	.397		5.4	10	SF	3	C		32		
PEKG	06	0402	0408	0422	S13	E36	.620		8.3	20	SF		C	0408	25	.3	E
LEAR	06	0813		0853	N18	W06	.382		5.9	40	SN	3	C		109		
MANI	06	0820E	0822U	0828D	N13	W05	.299		6.0	8D	SF	1	V		40	.4	
PEKG	06	0823	0825	0837D	N13	W08	.317		5.7	14D	SN		C	0825	76	.8	E
PEKG	06	0836	0838	0844	N13	W07	.402		5.8	8	SN		C	0837	88	1.0	F
HOLL	06	1848	1852	1924	N07	W21	.333		5.2	36	SN	3	C		46		
HOLL	06	2145	2149	2159	S06	E53	.797		10.9	14	SN	3	C		61		
BIGB	06	2146	2150	2231	S07	E55	.817		11.0	45	SN	3	C	2150	100	1.8	
WEND	07	0922	0937	1010	N15	W24	.502		5.6	48	SF		C	0937	100	1.2	
WEND	07	1008	1008	1017	N07	W30	.526		5.2	9	SF		C	1008	44	.5	E
WEND	07	1122	1123	1129	N11	E77	.978		13.2	7	SF		C	1123	19		
WEND	07	1136	1138	1155	S07	E59	.856		11.9	19	SF		C	1138	63	1.3	
WEND	07	1207	1216	1236	N19	W21	.509		5.3	23	SN		C	1216	175	2.0	

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WEND	07	1253	1255	1259	N08	E53	.866		12.0	6	SF		C	1255	25	.5	
WEND	07	1320	1332	1334	N15	W07	.339		7.0	14	SF		C	1332	31	.3	E
WEND	07	1344	1348	1403	S19	E15	.363		8.7	19	SN		C	1348	175	2.0	
RAMY	07	1402	1430	1527	N07	E56	.838		11.8	85	1B	3	C		108		D
WEND	07	1405E	1409	1415	S23	W54	.826		3.5	100	SN		C	1409	56	1.1	E
UPIC	07	1412E		1430	S23	W52	.807		3.7	180	1F		P	1412	143	2.9	
WEND	07	1413	1434	1444	N07	E59	.865		12.0	31	SB		C	1434	44	.9	
UPIC	07	1420	1430	1525D	N07	E58	.856		11.9	65U	SF		P	1430	41	.8	K
BOUL	07	1420E	1431	1559	N08	E52	.800		11.5	330	1B	2	C		360		
HOLL	07	1430	1430	1453	N06	E59	.863		12.0	23	SF	3	C		56		
BOUL	07	1448E	1448U	1453	N18	W22	.509		6.0	50	SF	2	C		40		
BOUL	07	1456	1503U	1506	N06	W90	1.000		30.9	10	SF	2	C		80		
WEND	07	1504	1508	1537D	N08	E55	.830		11.8	330	SN		C	1508	44	.8	E
BOUL	07	1542	1548	1559	N08	W31	.545		5.3	17	SB	2	C		100		D
WEND	07	1543	1547	1551	N05	W39	.641		4.7	8	SF		C	1547	19	.3	
HOLL	07	1546	1548	1553	N05	W38	.628		4.8	7	SF	3	C		39		
RAMY	07	1547	1548	1552	N04	W37	.612		4.9	5	SN	3	C		45		
RAMY	07	1642	1645	1652D	S18	E13	.330		8.7	100	SF	3	C		69		
HOLL	07	1734	1738	1801	N05	W38	.628		4.9	27	SB	3	C		101		
BOUL	07	1739E	1750	1800	N08	W31	.545		5.4	210	1B	2	C		320		D
RAMY	07	1739E	1741	1757D	N06	W39	.644		4.8	180	SN	3	C		93		
BIG3	07	1852	1857	1925	N06	W37	.618		5.0	33	SN	3	C	1857	60	.8	
HOLL	07	1854	1855	1927D	N06	W37	.618		5.0	330	SN	3	C		75		
BIG3	07	1856	1913	1933	N18	W27	.563		5.8	37	SF	3	C	1913	80	.9	
HOLL	07	1912	1914	1918	N19	W25	.550		5.9	6	SF	3	C		31		
BIG3	07	1938	1942	2039	N12	W29	.541		5.6	52	SF	3	C	1942	60	.7	
BIG3	07	1957	2006	2108	S08	W52	.787		3.9	71	1B	3	C	2006	200	3.3	
RAMY	07	2000E	2002	2047	S08	W53	.797		3.9	470	SF	3	C		72		
RAMY	07	2000	2001	2030	N04	W40	.652		4.8	30	SF	3	C		47		
RAMY	07	2002	2005	2028	N14	W27	.530		5.8	26	SF	3	C		33		
RAMY	07	2101	2106	2114D	N15	W29	.562		5.7	130	SN	3	C		103		
BIG3	07	2102	2110	2155	N13	W29	.548		5.7	53	SN	3	C	2110	70	.8	
HOLL	07	2103E	2105U	2142	N14	W28	.543		5.8	390	SN	3	C		82		
BIG3	08	0005	0011	0039	N09	E52	.802		11.9	34	SN	3	C	0011	70	1.2	
HOLL	08	0008	0010	0024	N07	E52	.738		11.9	16	SN	3	C		46		
HOLL	08	1333	1334	1345	N16	W39	.684		5.6	12	SF	3	C		41		
BOUL	08	1457	1459U	1507	N07	W43	.697		5.4	10	SF	3	C		80		
BOUL	08	1457E	1457U	1513	N07	E38	.634		11.5	160	SF	3	C		120		
BIG3	08	1500	1503	1511	N15	W44	.735		5.3	11	SN	3	C	1503	60	.9	
HOLL	08	1500	1501	1508	N16	W43	.728		5.4	8	SN	3	C		90		
BOUL	08	1507E	1507U	1518	N17	W40	.701		5.6	110	SB	3	C		120		
HOLL	08	1613	1617	1636	N04	E39	.638		11.6	23	SN	3	C		87		
BIG3	08	1615	1619	1634	N06	E40	.657		11.7	19	SN	3	C	1619	70	.9	
BOUL	08	1616	1619	1626D	N07	E38	.634		11.5	100	SN	3	C		120		
BIG3	08	1631	1634	1649	N15	W42	.713		5.5	18	SN	3	C	1634	50	.7	
BIG3	08	1650	1705	1747	S09	W66	.912		3.8	57	SB	3	C	1705	80		
HOLL	08	1704	1705	1720	S05	W68	.926		3.6	16	SN	3	C		50		
HOLL	08	1706	1706	1709D	S20	E01	.285		8.8	30	SB	3	C		100		
BIG3	08	1707	1710	1735	S20	E02	.287		8.9	28	SF	3	C	1710	60	.6	
PALE	08	1854	1857	1908	N08	W48	.757		5.2	14	SF	3	C		40		
PALE	08	1930	1930	1939	N04	W51	.783		5.0	9	SF	3	C		70		
BIG3	08	2026	2026	2052	N12	E62	.895		13.5	26	SN	3	C	2026	60	1.3	
BIG3	08	2056	2103	2213	N14	W43	.720		5.6	77	SB	3	C	2103	90	1.3	
BIG3	08	2057	2104	2154	S08	W65	.905		4.0	57	SN	3	C	2104	80	2.0	
HOLL	08	2201	2234	2302	N08	E38	.637		11.8	301	2B	3	C		675		
BIG3	08	2206	2239	0039D	N09	E42	.631		12.1	1530	1B	3	P	2239	320	4.4	
MITK	08	2243E		2550	N10	E36	.620		11.6	1870	2B		C	2247	680	8.8	FJ
MANI	08	2250E	2251U	2320D	N09	E37	.628		11.7	300	1N	1	V		260	3.5	FZ
LEAR	09	0023E	0025	0152	N08	E36	.611		11.7	890	2N	3	C		541		
MANI	09	0025E	0025U	0036D	N09	E36	.615		11.7	110	1N	1	V		240	3.1	F
LEAR	09	0156	0159	0213	N08	W51	.783		5.3	23	1B	3	C		149		D
LEAR	09	0239	0248	0253D	N05	W54	.815		5.1	110	1B	3	C		345		
MITK	09	0247	0250	0303D	N04	W58	.852		4.8	160	2N		C	0250	250	5.4	E
WEND	09	0635	0642	0721	N15	W46	.756		5.8	46	SF		C	0721	50	.8	
UPIC	09	0900E		0910	S07	W76	.363		3.7	100	SF		P	0900	82	1.7	
WEND	09	1050	1052	1105	N09	E34	.589		12.0	15	SN		C	1052	25	.3	
WEND	09	1410	1414	1428	S18	W24	.465		7.8	18	SN		C	1414	56	.7	
HOLL	09	1412	1418	1428	S19	W24	.473		7.8	16	SN	3	C		60		
WEND	09	1551	1559	1608	N07	E29	.511		11.8	17	SF		C	1559	34	.4	E

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OBSERVATORY	OBSERVED UT DAY	OBSERVED UT START	OBSERVED UT MAX. PHASE	OBSERVED UT END	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
BIGB	09	1923	1924	1931	N08	W67	.926		4.8	8	SF	3	C	1924	60		
BIGB	09	2141	2146	2156	N11	E21	.428		11.5	15	SN	3	C	2146	70	.8	
HOLL	09	2142	2210	2245	N11	E22	.441		11.6	63	1B	3	C		345		D
BIGB	09	2204	2208	2253	N10	E20	.406		11.4	49	SN	3	C	2208	110	1.2	
MANI	09	2215E	2216U	2245D	N10	E23	.446		11.7	30D	1N	1	V		250	2.9	F
HOLL	09	2256	2258	2356	N09	E22	.425		11.6	60	SB	3	C		112		D
MANI	09	2257E	2257	2342D	N09	E23	.439		11.7	45D	SN	1	V		100	1.2	F
BIGB	09	2257	2308	0003	N08	E27	.488		12.0	72	SN	3	C	2308	90	1.0	
HOLL	10	0118	0120	0129D	N16	W65	.921		5.2	11D	SN	2	C		104		
LEAR	10	0118	0121	0158	N15	W65	.920		5.2	40	SN	3	C		113		
LEAR	10	0202	0206	0221	N08	E25	.459		12.0	19	SF	3	C		43		
LEAR	10	0252	0254	0318	N09	E21	.411		11.7	26	SF	3	C		33		
LEAR	10	0343	0344	0347	N05	W71	.348		4.8	4	SF	3	C		26		
LEAR	10	0343	0343	0347	N07	E24	.439		12.0	4	SF	3	C		22		
LEAR	10	0459	0507U	0548	N09	E20	.397		11.7	49	SN	3	C		151		
PEKG	10	0502	0503	0513	N09	E20	.397		11.7	11	SN		C	0504	97	1.1	F
PEKG	10	0508	0513	0525	N09	E23	.438		11.9	17	SF		C	0515	126	1.5	E
PEKG	10	0530	0532	0538	N07	E21	.396		11.8	8	1B		C	0532	210	2.4	F
UPIC	10	0705E		0720	N08	E24	.445		12.1	15D	SF		P	0705	61	1.3	
ATHN	10	0715	0717	0805	N06	W73	.959		4.8	50	1B	2	C		206		
LEAR	10	0715E	0722U	0752	N05	W74	.963		4.8	37D	SF	2	C		30		
UPIC	10	0720E		0745	N01	W84	.995		4.0	25D	1N		P	0720	143	2.9	F
LEAR	10	0808	0810	0813	N10	E18	.379		11.7	5	SF	3	C		28		
WEND	10	1043		1052D	N11	E17	.376		11.7	9D	SN		C	1047	56	.6	
BIGB	10	1523	1533	1559	N12	E12	.331		11.5	36	SN	3	C	1533	60	.6	
BIGB	10	1621	1623	1640	S10	E48	.744		14.3	19	SN	3	C	1623	80	1.2	
BIGB	10	1930	1935	1951	N11	E10	.299		11.6	21	SB	3	C	1935	80	.8	
BIGB	10	2001	2005	2037	N11	E10	.299		11.6	36	SF	3	C	2005	70	.7	
HOLL	10	2233	2236	2256	N12	E09	.304		11.6	23	SN	3	C		62		
HOLL	10	2234	2235	2245	N13	E83	.994		17.2	11	1N	3	C				
PALE	10	2235E	2240U	2255D	N11	E09	.289		11.6	20D	SF	3	C		48		
MANI	10	2237E	2237U	2246D	N10	E11	.295		11.8	9D	SN	1	V		100	1.1	F
HOLL	10	2237	2242	2253	N21	W31	.627		8.6	16	SF	3	C		80		
PALE	10	2315	2320	2342	N11	E08	.281		11.6	27	SF	3	C		77		
HOLL	10	2317	2320	2359	N08	E10	.259		11.7	42	SN	3	C		87		
HOLL	11	0018	0018	0022	N10	E89	1.000		17.7	4	SF	2	C				
LEAR	11	0122	0123	0134	N08	E07	.227		11.6	12	SN	3	C		53		
PALE	11	0144	0152U	0205	N11	E09	.288		11.7	21	SF	3	C		28		
LEAR	11	0149	0151	0201	N10	E05	.243		11.5	12	SN	3	C		22		
LEAR	11	0213	0215	0219	N11	E31	.558		13.4	6	SF	3	C		20		
LEAR	11	0215	0548	0635	N10	E08	.265		11.7	260	2B	3	C		538		D
PEKG	11	0235	0238	0241	N10	E04	.237		11.4	6	SN		C	0238	92	1.0	E
PEKG	11	0235	0237	0240	N13	E14	.363		12.2	5	SN		C	0237	42	.5	E
PALE	11	0237	0239	0253	N11	E09	.288		11.8	16	SN	3	C		96		
MANI	11	0238E	0239U	0246D	N11	E08	.279		11.7	8D	SN	1	V		50	.5	E
PALE	11	0256	0300	0322	N11	E07	.272		11.6	26	SN	3	C		82		
PEKG	11	0256	0258	0303	N11	E07	.272		11.6	7	SN		C	0302	105	1.1	E
LEAR	11	0316	0322	0335	S07	E44	.694		14.4	19	SF	3	C		20		
PEKG	11	0324	0326	0349	N12	E04	.270		11.4	25	SF		C	0327	55	.6	EK
PEKG	11	0324	0331	0349	N11	E05	.258		11.5	25	SN		C	0332	80	.9	E
LEAR	11	0454	0454	0457	N11	E78	.981		17.1	3	SF	3	C				
LEAR	11	0502	0505	0514	N13	E32	.583		13.6	12	SN	3	C		71		
MANI	11	0503E	0504U	0512D	N11	E29	.532		13.4	9D	SF	1	V		50	.6	F
MANI	11	0524E	0525U	0540D	N09	E03	.216		11.5	16D	SF	1	V		60	.6	F
LEAR	11	0544	0545	0618	N20	W32	.629		8.8	34	SF	3	C		40		
MANI	11	0546E	0548	0553D	N10	E04	.237		11.5	7D	SN	1	V		120	1.3	
LEAR	11	0620	0637	0650	N10	E85	.997		17.5	30	SN	3	C				
ISTA	11	0620E		0638	N09	E01	.211		11.3	18D	1N						B
ISTA	11	0629		0642	N13	E90	1.000		18.0	13	SB						Z
ATHN	11	0634	0635	0658	N14	E88	1.000		17.9	24	SB	3	C				D
LEAR	11	0711	0713	0716	N10	E02	.230		11.4	5	SN	3	C		42		
LEAR	11	0751	0752	0756	N10	E01	.228		11.4	5	SN	3	C		41		
RAMY	11	1102	1113	1227	N13	E23	.469		13.2	85	SF	3	C		71		
RAMY	11	1108	1108	1122	N11	E72	.956		16.9	14	SN	3	C				
RAMY	11	1127	1129	1135	N10	E01	.228		11.6	8	SN	3	C		32		
RAMY	11	1212	1237	1428	N11	E73	.961		17.0	136	SN	3	C				
ATHN	11	1223	1225	1235	N13	E75	.971		17.1	12	SB	3	C		32		D
RAMY	11	1258	1304	1318	N10	W00	.227		11.5	20	SN	3	C		60		
HOLL	11	1350	1405	1427	N11	E80	.987		17.6	37	SF	3	C				
RAMY	11	1404	1405	1432	N11	W02	.246		11.4	28	SN	3	C		70		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
HOLL	11	1404	1405	1410	N10	W02	.230		11.4	6	SN	3	C		30		
BIGB	11	1414E	1421	1447	N10	E80	.987		17.6	330	SB	3	P	1421	60		
HOLL	11	1439	1443	1450	N10	E82	.992		17.8	11	SF	3	C				
HOLL	11	1449	1611	1717	N08	E00	.193		11.6	148	1B	3	C		235		D
BIGB	11	1443	1507	1530	N10	W03	.233		11.4	41	SF	3	C	1507	60	.6	
WEND	11	1509		1544D	N10	E72	.956		17.0	350	SN		C	1517	34		
BIGB	11	1509	1513	1543	N10	E73	.961		17.1	34	SN	3	C	1513	50		
HOLL	11	1511	1519	1554	N11	E74	.966		17.2	43	SN	3	C				
RAMY	11	1512	1612	1710	N11	W02	.246		11.5	118	1B	3	C		366		D
BIGB	11	1557	1605	1646	N10	W02	.230		11.5	49	SN	3	C	1605	100	1.0	
WEND	11	1558		1616D	N11	W01	.245		11.6	180	SN		C	1608	144	1.5	
WEND	11	1604		1616D	N09	E06	.234		12.1	120	SN		C	1612	62	.6	
BIGB	11	1607	1619	1711	N03	E05	.227		12.0	64	SF	3	C	1613	70	.7	
HOLL	11	1754	1753	1806	N10	W04	.237		11.4	12	SN	3	C		41		
PALE	11	2001E	2014U	2042	N10	W05	.243		11.5	410	SN	3	C		87		
BIGB	11	2005	2020	2055	N11	W07	.272		11.3	50	SN	3	C	2020	70	.7	
BIGB	11	2010	2015	2041	N13	E89	1.000		18.5	31	1N	3	C	2015	60		
HOLL	11	2210	2213	2224	N11	W06	.265		11.5	14	SN	3	C		78		
HOLL	11	2243	2249	2304	N10	W04	.237		11.6	21	SN	3	C		39		
PALE	11	2243	2259	2325	N10	E18	.378		13.3	42	SF	3	C		60		
HOLL	11	2245	2252	2334	N11	E20	.413		13.4	49	SF	3	C		45		
PALE	11	2248	2249	2310	N10	W07	.257		11.4	22	SF	3	C		41		
BIGB	11	2252	2301	2344	N10	E13	.331		13.4	52	SF	3	C	2301	60	.7	
HOLL	11	2340	2345	0009	N14	E89	1.000		18.7	29	SN	3	C				
LEAR	11	2347	0004	0012	N09	W49	.770		8.3	25	SF	3	C		19		
PALE	12	0023	0110	0213	N10	W07	.255		11.5	116	1N	3	C		338		
MANI	12	0037E	0037U	0043D	N11	W07	.270		11.5	60	SF	1	V		50	.5	
MANI	12	0136E	0136U	0149D	N15	E88	1.000		18.7	130	SB	1	V				
PALE	12	0353E	0353U	0408D	S03	W08	.139		11.6	150	SF	3	C		158		
RAMY	12	1332	1334	1342	N12	E60	.879		17.1	10	SF	3	C		24		
RAMY	12	1446	1451	1501	S05	W15	.260		11.5	15	SF	3	C		35		
BIGB	12	1605	1613	1651	N10	E61	.884		17.2	46	SN	3	C	1613	50	1.1	
PALE	12	1832	1836	1846	S05	W17	.294		11.5	14	SF	3	C		37		
PALE	12	1636	1838U	1849D	N11	W18	.387		11.4	130	SF	3	C		21		
BIGB	12	1837	1848	1946	S05	W16	.277		11.6	63	SF	3	C	1845	70	.8	
HOLL	12	1947	1951	2006	N11	E59	.869		17.2	19	SN	3	C		43		
BIGB	12	1948	1951	2013	N10	E60	.876		17.3	25	SN	3	C	1951	90	1.9	
HOLL	12	2007	2007	2012	N20	E66	.932		17.8	5	SF	3	C		16		
RAMY	12	2016	2019	2056	S06	W17	.296		11.6	40	1N	3	C		297		
HOLL	12	2017	2021	2033	S05	W17	.294		11.6	16	SN	3	C		116		
RAMY	12	2055	2108	2129D	N11	E57	.852		17.1	330	SB	3	C		47		
BIGB	12	2245E	2259	2320	N11	E58	.861		17.3	350	SN	3	P	2259	60	1.2	
HOLL	12	2337	2342	2358	N10	E04	.235		13.3	21	SF	3	C		27		
HOLL	12	2340	2345	0003	N14	E83	1.000		19.7	23	SN	3	C				
PEKG	13	0013	0014	0021	N11	W19	.398		11.6	8	SF		C	0013	38	.4	E
PEKG	13	0105	0120	0131	N11	E57	.852		17.3	26	SN		C	0120	34	.7	D
PEKG	13	0130	0132	0138	N20	E67	.937		18.1	9	SN		C	0133	25		D
PEKG	13	0214	0232	0236	N08	W01	.130		13.0	22	SN		C	0232	55	.6	DJ
MANI	13	0346	0355	0540D	N10	E56	.841		17.4	1140	2B	1	V		300	5.3	FE
PALE	13	0350E	0350U	0359D	N13	E54	.828		17.2	90	1B	2	C		300		D
MITK	13	0352E	0422	0612D	N09	E58	.857		17.5	1400	3B		C	0422	740	14.5	FU
PEKG	13	0519E	0519F	0545D	N12	E56	.844		17.4	260	2B		P	0513	234	5.6	BFU
RAMY	13	1230	1233	1240	N11	E50	.784		17.3	10	SF	3	C		21		
RAMY	13	1406	1407	1413	N17	E55	.846		17.7	7	SF	3	C		26		
BIGB	13	1444	1444	1500	N06	W26	.461		11.7	16	SN	3	C	1444	50	.6	
RAMY	13	1444	1444	1454	N08	W26	.472		11.7	10	SB	3	C		63		D
HOLL	13	1445	1445	1455	N06	W26	.461		11.7	10	SN	3	C		43		
BIGB	13	1609	1626	1633	N11	W25	.477		11.8	24	SF	3	C	1626	40	.5	
HOLL	13	1610	1612	1621	N10	W26	.484		11.7	11	SN	3	C		23		
BIGB	13	1749	1804	1938	N15	E64	.912		18.5	109	1B	3	C	1804	180	4.2	
HOLL	13	1752	1807	1920	N13	E60	.880		18.2	88	1N	3	C		225		
HOLL	13	1803	1815	1833	N11	E47	.752		17.3	24	SN	3	C		61		
PALE	13	1821E	1821U	1956D	N14	E63	.904		18.5	950	1F	3	C		165		D
PALE	13	1821E	1821	1823D	N12	E45	.733		17.1	20	1F	3	C		165		D
BIGB	13	2026	2031	2058	S07	W31	.517		11.5	32	SN	3	C	2031	60	.7	
HOLL	13	2305	2303	2335	N15	E60	.883		18.5	30	SF	3	C		34		
MITK	13	2324	2328	2344	N09	W30	.533		11.7	20	SN		C	2328			E
HOLL	13	2324	2326	2344	N10	W29	.525		11.8	20	SB	3	C		86		
PALE	13	2326E	2326U	2343D	N09	W30	.533		11.7	170	SN	3	C		82		
HOLL	13	2338	2346	0020	N17	E43	.791		17.7	42	SN	3	C		53		

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OBSERVATORY	OBSERVED UT: DAY	START	MAX. PHASE	END	LOCATION: APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS: TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
PALE	14	0232	0233	0246	N18	E47	.774		17.6	14	SF	3	C		33		
MANI	14	0315E	0315U	0325	N11	W33	.582		11.7	100	SN	1	V		40	.5	F
MITK	14	0315	0316	0342	N09	W31	.546		11.8	27	SN		C	0316			E
PEKG	14	0315	0318	0335	N11	W33	.582		11.7	20	1B		C	0317	210	2.6	EF
PEKG	14	0359E	0359	0401	N09	W52	.798		10.3	20	SF		C	0359	17	.3	D
LEAR	14	0445	0447	0500	N10	W33	.577		11.7	15	SN	3	C		28		
LEAR	14	0719	0721	0729	N10	W36	.617		11.6	10	SF	3	C		31		
LEAR	14	0808	0848	0923D	N20	E32	.627		16.7	75D	3B	3	C		1162		
MONT	14	0830E	0830	0858	N21	E36	.676		17.1	28D	2N		C	0830	600		B
UPIC	14	1000E		1050	N21	E36	.676		17.1	50D	1F		P	1000	245	5.1	F
RAMY	14	1348	1348	1523	N10	E35	.604		17.2	95	SF	3	C		21		
RAMY	14	1352	1353	1523	N11	W39	.658		11.7	31	SN	3	C		25		
BOUL	14	1353	1357U	1359D	N12	W36	.625		11.9	6D	SN	3	C		120		
HOLL	14	1420	1425	1453	N10	E33	.577		17.1	33	SN	3	C		88		
RAMY	14	1653	1655	1658	N11	W39	.658		11.8	5	SN	3	C		52		
HOLL	14	1655	1655	1702	N10	W40	.667		11.7	7	SN	3	C		44		
RAMY	14	1727	1728	1737	N14	E39	.671		17.7	10	SF	3	C		20		
PALE	14	1931	1934U	2027	N11	E30	.543		17.1	56	SN	3	C		124		
HOLL	14	1931	1946	2049	N10	E31	.551		17.1	78	1N	3	C		266		
PALE	14	2003	2012	2029	N10	W41	.679		11.8	26	SF	3	C		31		
PALE	14	2123	2125	2204	N10	W46	.738		11.4	41	SN	3	C		32		
HOLL	14	2132E		2155	N10	W45	.727		11.5	23D	SN	3	C		84		
HOLL	14	2132E	2146U	2303	N11	E26	.490		16.8	91D	SF	3	C		61		
HOLL	14	2249	2303	2315	N16	E38	.669		17.8	26	SF	3	C		34		
HOLL	14	2338	2346	0020	N17	E49	.791		18.7	42	SN	3	C		53		
HOLL	15	0030	0041	0052	N16	E37	.657		17.8	22	SN	3	C		30		
HOLL	15	0038	0040	0050	N11	W48	.762		11.4	12	SF	3	C		59		
LEAR	15	0155	0212	0223	N10	W45	.726		11.7	28	SN	3	C		165		
LEAR	15	0229	0232	0249	N10	W45	.726		11.7	20	SN	3	C		70		
LEAR	15	0521	0523	0534	N10	W25	.463		13.3	13	SF	3	C		33		
WEND	15	0739	0748	0811	N10	E27	.496		17.3	32	SN		C	0748	125	1.5	
LEAR	15	0739	0758	0833	N11	E25	.475		17.2	54	SN	3	C		143		D
WEND	15	0836	0839	0845	N03	E31	.523		17.7	9	SF		C	0839	50	.6	ES
WEND	15	0945	0947	0949	N16	E42	.714		18.6	4	SF		C	0947	28	.4	
HOLL	15	1311E	1312U	1553	N08	W33	.568		13.1	162D	SN	3	C		176		
WEND	15	1315E		1322D	N09	W31	.545		13.2	7D	SN		P	1319	56	.7	
HOLL	15	1830	1831	1905D	N13	E19	.415		17.2	35D	SB	3	C		193		
PALE	15	2220E	2222U	2237	N13	E31	.567		18.3	17D	SF	3	C		111		
HOLL	15	2352	2353	0014	N15	E44	.731		19.3	22	SN	3	C		99		
PALE	15	2354	0024U	0049	N13	E14	.358		17.0	55	1N	3	C		207		
PALE	16	0007	0013U	0028D	N18	E23	.509		17.7	21D	SF	3	C		21		
PALE	16	0013	0027U	0042	S24	E58	.865		20.4	29	SF	3	C		28		
PEKG	16	0014E	0014	0023	N12	E19	.404		17.4	9D	SN		P	0014	76	.8	F
MITK	16	0022	0027	0043	N12	E18	.392		17.4	21	SN		C	0027			E
PEKG	16	0023	0024	0040	N13	E15	.367		17.1	17	SB		P	0024	139	1.5	E
MANI	16	0025E	0025U	0035D	N09	E15	.324		17.1	10D	SB	1	V		80	.9	F
LEAR	16	0026E	0026U	0049	N12	E15	.356		17.1	23D	SN	3	C		158		
LEAR	16	0035	0036	0102	N15	W33	.603		13.5	27	SN	3	C		109		
PALE	16	0037E	0037U	0103	N14	W34	.610		13.5	26D	1F	3	C		206		
PEKG	16	0038	0040	0055	N14	W35	.622		13.4	17	SN		P	0040	122	1.6	E
PALE	16	0102	0110U	0112	N09	W58	.857		11.7	10	SF	3	C		26		
PEKG	16	0103	0108	0111	N09	W58	.857		11.7	8	SF		P	0108	46	.9	D
LEAR	16	0104	0107	0113	N10	W57	.849		11.8	9	SN	3	C		40		
PEKG	16	0210	0213	0224	S24	E58	.865		20.4	14	SB		P	0213	55	1.1	E
PALE	16	0210E	0212	0232	S23	E57	.855		20.4	22D	SB	3	C		134		
LEAR	16	0219E	0219U	0234	S26	E53	.828		20.1	15D	SF	3	C		34		
LEAR	16	0441	0443	0507	S26	E56	.853		20.4	26	SF	3	C		22		
LEAR	16	0625	0629	0631	N11	W60	.876		11.8	6	SF	3	C		15		
WEND	16	0639	0649	0706	N05	W56	.833		12.1	27	SF		C	0649	44	.8	
MONT	16	0745E	0745	0752	N13	E30	.553		18.6	7D	SF		C	0745	50		E
BUCA	16	0750		0817	N15	E31	.579		18.7	27	SN		C	0754	107	1.4	E
PEKG	16	0752	0754	0810	N15	E29	.554		18.5	18	SN		P	0754	84	1.0	E
MONT	16	0754	0831	0940D	N10	E16	.347		17.5	106D	3B		C	0831	1700		
LEAR	16	0806	0846	0916D	N14	E14	.368		17.4	70D	3B	3	C		1893		D
BUCA	16	0807	0834	1035	N11	E16	.357		17.5	148	3B		C	0834	1289	14.3	U
PEKG	16	0812	0824	0850D	N10	E15	.334		17.5	38D	2B		P	0824	484	5.3	FU
ISTA	16	0855E		1040	N13	E16	.379		17.6	105D	3B						BIZ
UPIC	16	0925E		1023D	N09	E14	.311		17.4	58D	3N		P	0925	938	19.3	F
BUCA	16	0928	0928	0945	N14	W38	.658		13.5	17	1F		C	0928	215	2.9	
RAMY	16	1137	1320	1426	N06	E11	.241		17.3	169	1N	3	C		226		

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HOLL	16	1301E		1534	N08	E09	.240		17.2	150D	SF	1	C		73		
RAMY	16	1423	1429	1440	N03	W69	.935		11.4	17	1F	3	C		152		
HOLL	16	1423	1426	1438	N05	W68	.929		11.5	15	1F	3	C		185		
RAMY	16	1438	1438	1442	S27	E05	.421		17.0	4	SF	3	C		35		
RAMY	16	1440	1442	1448	S23	E50	.793		20.4	8	SF	3	C		46		
RAMY	16	1449	1452	1502	S27	E05	.421		17.0	13	SF	3	C		35		
HOLL	16	1629E	1629U	1648D	N10	E06	.241		17.1	130	SN	2	C		60		
BIGB	16	2218	2218	2239	N19	E15	.440		18.1	21	SF	1	C	2218	70	.7	
PALE	16	2354	0024	0025D	N13	E11	.326		17.8	31D	1N	3	C		207		
LEAR	17	0220	0220	0228	N11	E01	.233		17.2	8	SF	3	C		63		
LEAR	17	0343	0344	0411	S26	W03	.402		16.9	28	SN	3	C		68		
LEAR	17	0801	0803	0811	N15	E10	.343		18.1	10	SF	3	C		30		
BIGB	17	1940	1948	2049	N14	W10	.329		17.1	69	1B	2	C	1948	210	2.2	
HOLL	17	1944	1948	2036	N02	E20	.350		19.3	52	SN	3	C		166		
BIGB	17	2123	2131	2200	N17	W03	.337		17.7	37	SN	2	C	2131	80	.8	
PEKG	18	0018	0020	0032	S29	E29	.621		20.2	14	SF		C	0020	59	.8	E
LEAR	18	0019	0022	0053	S29	E28	.611		20.1	34	SN	3	C		105		
PALE	18	0025E	0025U	0041	S29	E28	.611		20.1	16D	SF	3	C		38		
LEAR	18	0249	0252	0307	N11	W15	.342		17.0	18	SN	3	C		59		
PALE	18	0250	0253	0306	N11	W15	.342		17.0	16	SF	3	C		61		
ISTA	18	0630E		0705	N12	W17	.377		17.0	35D	SF						E
LEAR	18	0651	0652	0708	N10	W19	.384		16.9	17	SF	3	C		23		
ISTA	18	0705		0738	N53	E90	1.001		25.0	33	SN						D
ISTA	18	0752		0813	S22	W17	.433		17.1	21	SF						EB
ISTA	18	0757		0815	N19	W01	.364		18.3	78	1N						F
LEAR	18	0801	0809	0918D	S26	W19	.498		16.9	77D	SN	3	C		65		
LEAR	18	0802	0803	0825	N19	W02	.366		18.2	23	SF	3	C		57		
MONT	18	0804	0813	0831	S27	W15	.478		17.2	27	SF		C	0813	50		B
PEKG	18	0839E	0840	0911	S27	W16	.485		17.2	32D	SF		C	0839	88	1.0	E
RAMY	18	1314	1314	1321	N14	W16	.387		17.4	7	SF	3	C		22		
RAMY	18	1329	1329	1342	S27	W22	.536		16.9	13	SF	3	C		31		
RAMY	18	1348	1352	1357	N13	W21	.437		17.0	9	SF	3	C		21		
RAMY	18	1410	1415	1429	S27	W21	.527		17.0	19	SB	3	C		116		D
HOLL	18	1411	1420	1432	S30	W23	.577		16.9	21	SN	3	C		73		
BIGB	18	1413	1419	1430	N12	W21	.428		17.0	17	SF	3	C	1419	50	.6	
RAMY	18	1415	1415	1425	N12	W23	.454		16.9	10	SN	3	C		43		
HOLL	18	1438	1451	1544	N13	W18	.400		17.3	66	SN	3	C		103		
RAMY	18	1438	1443	1448	N14	W16	.387		17.4	10	SF	3	C		61		
BIGB	18	1440	1507	1556	N14	W20	.434		17.1	76	SN	3	C	1507	180	2.0	
RAMY	18	1450	1456	1511	N11	W20	.406		17.1	21	SN	3	C		170		
RAMY	18	1643	1711	1726	N14	W18	.410		17.3	43	SF	3	C		121		
BIGB	18	1738	1746	1800	N07	W18	.346		17.4	22	SN	3	C	1746	100	1.1	
PALE	18	1742E	1745	1810	N08	W18	.354		17.4	28D	SF	3	C		118		
HOLL	18	1747	1747	1841	N07	W18	.346		17.4	54	SN	3	C		141		
RAMY	18	1825	1830	2042	N14	W19	.422		17.3	137	SF	3	C		120		
BIGB	18	1826	1832	1851	N17	W01	.332		18.7	25	SN	3	C	1832	70	.7	
PALE	18	1827	1829	1837D	N17	W04	.338		18.5	10D	SF	3	C		93		
BIGB	18	1853	1854	1910	N11	W21	.419		17.2	17	SN	3	C	1854	80	.9	
HOLL	18	1858	1900	1912	N14	W07	.335		18.3	14	SF	3	C		21		
BIGB	18	1942	1948	2012	N15	W20	.443		17.3	30	1B	3	C	1948	310	3.4	
PALE	18	1942	1945	2039	N14	W21	.446		17.2	57	2N	3	C		550		D
HOLL	18	1944	1945	2025	N12	W22	.441		17.2	41	1B	3	C		445		D
HOLL	18	2153	2153	2158	N10	W20	.398		17.4	5	SN	3	C		37		
ISTA	19	0657		0705	S14	E90	1.000		26.0	8	1F						
ISTA	19	0815		0837	N16	W10	.354		18.6	22	1N						F
LEAR	19	0816	0817	0856	N14	W13	.354		18.4	40	SN	3	C		41		
MONT	19	0853	0855	0857	N18	W10	.383		18.6	4	SF		C	0855	50		E
LEAR	19	0907	0914	0919D	N16	W11	.362		18.6	12D	SF	3	C		59		
WEND	19	0911E	0923	0948D	N17	W09	.361		18.7	37D	SN		C	0923	113	1.2	
HOLL	19	1333	1333	1411	N05	W90	1.000		12.8	38	SN	2	C				
HOLL	19	1559	1646	1706	N12	W34	.597		17.1	67	SF	3	C		134		
HOLL	19	1710	1712	1722	S28	W36	.681		17.0	12	SN	3	C		51		
HOLL	19	1858	1917	1928	N14	W32	.583		17.4	30	SF	3	C		94		
PALE	19	1859E	1932U	1952D	N07	W32	.548		17.4	53D	SF	3	C		105		D
HOLL	19	1930	1930	1941	N07	W34	.576		17.3	11	SF	3	C		31		
PALE	19	2132	2132	2140	N14	W17	.397		18.6	8	SF	3	C		29		D
PALE	20	0105	0107	0113	N11	W45	.727		16.7	8	SF	3	C		31		
LEAR	20	0242	0259	0348	N12	W45	.730		16.7	66	1N	3	C		422		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
PALE	20	0253	0302	0319	N12	W43	.707		16.9	26	1F	3	C		204		
PEKG	20	0300	0304	0330	N12	W41	.683		17.1	30	1N		C	0304	344	4.8	FL
LEAR	20	0340	0343	0405	S28	E05	.443		20.5	25	SF	3	C		37		
LEAR	20	0508	0510	0518	N21	W40	.713		17.2	10	SF	3	C		34		
LEAR	20	0733	0737	0802	N17	W23	.495		18.6	29	SN	3	C		57		
WEND	20	0736	0738	0747	N18	W23	.504		18.6	11	SF		C	0738	31	.4	
ISTA	20	0813		0844	S29	E02	.453		20.5	31	SN						E
LEAR	20	0814	0816	0822	N11	W47	.750		16.8	8	SF	3	C		21		
ISTA	20	0818		0847	N10	W45	.724		17.0	29	SN						E
ISTA	20	0818		0835	N14	W49	.779		16.7	17	SF						E
HOLL	20	2147	2149	2202	N17	W31	.589		18.6	15	SN	2	C		109		
PALE	21	0214	0215	0226	N14	W50	.789		17.3	12	SF	3	C		19		
ISTA	21	0645E		0702	N14	W38	.655		18.4	170	SF						D
ISTA	21	0650		0838	N11	E90	1.000		28.0	108	SB						K
RAMY	21	1245	1336	1446	S25	W17	.473		20.3	121	SF	3	C		71		
WEND	21	1328E		1706D	S27	W08	.441		21.0	218D	1F		C	1341	350	4.1	F
HOLL	21	1333	1356	1426	S23	W09	.475		20.9	53	SF	2	C		108		
UPIC	21	1349E	1355U	1415D	N31	W09	.561		20.9	26D	SF		P	1355	82	1.7	
WEND	21	1354	1357	1407	N18	E54	.837		25.6	13	SF		C	1357	44	.8	
WEND	21	1510	1512	1518	N24	E73	.968		27.1	8	SF		C	1512	13		
HOLL	21	1529	1532	1540	N15	W62	.896		17.0	11	SF	3	C		43		
HOLL	21	1937	2003	2022	N17	E49	.787		25.5	45	SF	2	C		63		
PALE	21	2142E	2157U	2210D	S24	W21	.499		20.3	28D	SF	3	C		65		
PEKG	22	0520	0523	0529	N16	E45	.742		25.6	9	SN		P	0522	59	.9	E
BUCA	22	0620		0700	N16	W61	.890		17.7	40	1N		C	0629	215	3.8	
MITK	22	0621	0625	0653	N16	W63	.904		17.5	32	2B		C	0625	300		FH
PEKG	22	0622	0624	0652	N17	W64	.912		17.5	30	2B		P	0624	442		FU
ISTA	22	0753		0845	N17	E41	.702		25.4	52	SN						D
HOLL	22	1859	1907	1947	N17	E36	.646		25.5	48	SN	3	C		28		
HOLL	22	2135	2136	2143	N18	E35	.640		25.5	8	SF	3	C		28		
PALE	23	0255	0300	0303	N13	E66	.921		28.1	8	SF	3	C		15		
LEAR	23	0322	0324	0403	N13	E65	.914		28.0	41	SB	3	C		87		D
PALE	23	0322	0325	0358	N14	E65	.915		28.0	36	1N	3	C		123		D
PEKG	23	0333	0339	0352	N13	E65	.914		28.0	19	1N		P	0339	126		F
LEAR	23	0422	0422	0427	N02	E71	.946		28.5	5	SF	3	C		19		
LEAR	23	0603	0603	0611	N17	E30	.574		25.5	8	SF	3	C		29		
LEAR	23	0737	0738	0753	N17	E27	.538		25.3	16	SF	3	C		40		
PEKG	23	0947	0949	0954	N15	E63	.903		28.1	7	SN		C	0949	59		E
HOLL	23	1338	1342	1407	N18	E25	.523		25.4	29	SN	2	C		77		
HOLL	23	1638	1649	1709	S24	W43	.733		20.5	31	SN	3	C		104		
BIGB	23	1644	1649	1721	S25	W42	.727		20.5	37	SN	3	C	1649	110	1.5	
HOLL	23	1750	1800	1803	S23	W44	.739		20.4	13	SN	3	C		82		
BIGB	23	1755	1759	1810	S24	W43	.733		20.5	15	SN	3	C	1759	90	1.3	
LEAR	24	0004	0013	0023	N16	W76	.974		18.3	19	SF	3	C				
LEAR	24	0130	0134	0142	S27	W79	.983		18.1	12	SF	3	C		11		
LEAR	24	0137	0149	0208	N02	E50	.767		27.8	31	SF	3	C		57		
LEAR	24	0152	0200	0207	N14	W67	.928		19.1	15	SF	3	C		11		
LEAR	24	0320	0334	0346	S00	E43	.682		27.4	26	SF	3	C		25		
LEAR	24	0417	0419	0440	N15	W78	.981		18.3	23	SF	3	C				
LEAR	24	0504	0509	0538	S23	W75	.968		18.6	34	SN	3	C				
LEAR	24	0604	0650	0804	S23	W77	.976		18.5	120	SF	3	C				
LEAR	24	0745	0805	0844	N01	E47	.732		27.8	59	SF	3	C		49		
PEKG	24	0848E	0848E	0900D	S23	W76	.972		18.7	12D	1B		P	0848	126		EH
LEAR	24	0909	0914	0919D	S23	W77	.976		18.6	10D	SF	3	C				
BIGB	24	1411	1418	1458	S24	W79	.983		18.7	47	1N	3	C	1418	110		
HOLL	24	1411	1419	1454	N02	E43	.684		27.8	43	SB	3	C		125		
BIGB	24	1413	1422	1453	N03	E45	.710		28.0	40	SN	3	C	1422	90	1.3	
HOLL	24	1448	1507	1513	S21	W80	.985		18.6	25	SN	3	C				
BIGB	24	1525	1526	1629D	S23	W80	.985		18.6	64D	SN	3	C	1526	50		
HOLL	24	1526	1528	1537	S19	W80	.985		18.6	11	SF	3	C				
HOLL	24	1544	1651	1709	S21	W82	.990		18.5	85	SB	3	C				
HOLL	24	1705	1705	1720	N05	E40	.650		27.7	15	SN	3	C		32		
BIGB	24	1720	1725	1800	S23	W80	.985		18.7	40	SN	3	C	1725	40		
HOLL	24	1801	1808	1817	S21	W82	.990		18.6	16	SN	3	C				
BIGB	24	1805	1806	1811	N04	E35	.580		27.4	6	SN	3	C	1806	50	.6	
HOLL	24	1826	1831	1832D	S22	W81	.988		18.7	6D	SB	3	C				
BIGB	24	2005	2014	2037	N05	E42	.675		28.0	32	SN	3	C	2014	60	.8	
HOLL	24	2119	2119	2139	S21	W84	.994		18.6	20	SB	3	C				

Hα SOLAR FLARES

MAY 1981

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
BIG3	24	2216	2216	2255	N03	E40	.646		27.9	39	SN	3	C	2216	120	1.6	
HOLL	24	2255	2257	2302	S22	W83	.992		18.7	7	SN	3	C				
HOLL	24	2329	2336	2337	S21	W85	.996		18.6	8	SF	3	C				
MANI	24	2336E	2337U	2341D	S23	W84	.994		18.7	5D	SF	1	V				
HOLL	25	0004	0011	0014	S21	W91	1.000		18.2	10	SN	3	C				
MITK	25	0307	0316	0359D	N02	E33	.547		27.6	52D	1N		C	0316	250	3.1	E
PEKG	25	0314		0315D	N02	E33	.547		27.6	1D	1F		P	0315	336	4.1	F
ISTA	25	0615E		0650	S25	W90	1.000		18.5	35D	1N						E
ISTA	25	0641		0646	S03	W90	1.000		18.5	5	SN						D
ISTA	25	0706		0825	S22	W90	1.000		18.5	79	1B						E
MITK	25	0723	0731	0756	N02	E35	.576		27.9	33	1N		C	0731	290	3.6	
ISTA	25	0723		0759	N05	E36	.596		28.0	36	2B						U
ATHN	25	0725	0727	0750	N01	E35	.575		27.9	25	SB	3	C		127		
BUCA	25	0725	0735	0800	N03	E34	.563		27.9	35	1N		C	0735	215	2.6	U
RAMY	25	1253	1310	1336	S02	E28	.469		27.6	43	SF	3	C		56		
RAMY	25	1311	1318	1351	S07	E70	.939		30.8	40	SF	3	C		20		
RAMY	25	1359	1359	1421	N02	E25	.426		27.5	22	SF	3	C		20		
HOLL	25	1803	1813	1825	N03	E27	.460		27.8	16	SN	4	C		27		
HOLL	25	2019	2023	2033D	N14	E32	.578		28.2	14D	SB	3	C		108		
BIG3	25	2021	2023	2026D	N16	E32	.590		28.2	5D	SF	3	P	2023	70	.9	
HOLL	26	1351	1351	1425	N02	E16	.282		27.8	34	SF	3	C		22		
HOLL	26	1728	1729	1805	N03	E15	.269		27.9	37	SN	3	C		82		
HOLL	26	1815	1816	1837	N17	W17	.421		25.5	22	SN	3	C		89		
HOLL	26	2050	2051	2057	N02	E09	.167		27.5	7	SN	3	C		47		
HOLL	26	2103E	2103U	2120	N04	E64	.900		31.7	17D	SN	3	C		90		
HOLL	26	2121	2125	2137	N15	W21	.446		25.3	16	SF	3	C		53		
LEAR	27	0354	0354	0412	N03	E02	.083		27.3	18	SF	3	C		24		
LEAR	27	0509	0512	0517	N03	E02	.083		27.4	8	SF	3	C		31		
LEAR	27	0613	0614	0623	S07	E48	.745		30.3	10	SF	3	C		52		
LEAR	27	0621	0621	0630	N03	E06	.128		27.7	9	SF	3	C		30		
LEAR	27	0742	0744	0811	N06	E58	.851		31.7	29	SF	3	C		59		
LEAR	27	0751	0806	0830D	N16	W19	.431		25.9	39D	SF	3	C		165		
PEKG	27	0758	0807	0821	N17	W18	.430		26.0	23	1N		P	0807	357	4.1	F
PEKG	27	0829	0835	0852	N17	W13	.441		25.3	23	1B		P	0839	446	5.1	FU
PEKG	27	0907	0920	0935	N03	E05	.115		27.8	28	SB		P	0922	172	1.8	E
ATHN	27	1140E	1145U	1150	S08	E41	.661		30.6	10D	SN	4	C		127		
RAMY	27	1341	1342	1357	N15	W22	.457		25.9	16	SN	3	C		70		
RAMY	27	1525	1529	1540	N16	W22	.466		26.0	15	SF	3	C		54		
RAMY	27	1920	1922	1954	N00	W07	.124		27.3	34	SF	3	C		65		
BIG8	28	2004	2013	2049	S12	W41	.670		25.8	45	SN	3	C	2013	100	1.4	
BIG8	28	2046	2050	2102	S05	E21	.363		30.4	16	SF	3	C	2050	60	.7	
BIG8	28	2055	2100	2113	N03	W15	.268		27.7	18	SF	3	C	2100	70	.7	
BIG3	28	2223	2247	2333	N16	W58	.864		24.6	70	SF	3	C	2236	90	1.8	
HOLL	28	2301	2302	2315	N16	W40	.683		26.0	14	SN	3	C		31		
PEKG	28	2303E	2303E	2315	N16	W39	.671		26.0	12D	SN		P	2305	105	1.5	E
LEAR	29	0157	0157	0201	S06	E16	.288		30.3	4	SF	3	C		53		
LEAR	29	0300	0318	0414	N20	W45	.753		25.8	74	1N	3	C		178		
PALE	29	0301	0314	0409	N20	W44	.743		25.8	68	1F	3	C		168		D
PEKG	29	0308	0315	0346	N19	W42	.717		26.0	38	1N		C	0317	143	2.2	F
LEAR	29	0351	0351	0400	S00	W25	.423		27.3	9	SF	3	C		31		
PALE	29	0351	0351	0402	N00	W24	.407		27.4	11	SF	3	C		32		
LEAR	29	0833E	0833U	0842	N03	W27	.459		27.3	9D	SF	3	C		57		
PEKG	30	0724E	0724	0740	N05	E27	.464		1.3	16D	SF		P	0724	29	.4	E
LEAR	30	0845	0857	0906D	N13	E33	.582		1.8	21D	SF	3	C		67		
PEKG	30	0846E	0850	0850D	N14	E33	.587		1.8	4D	SN		P	0850	109	1.4	E
RAMY	30	1236	1243	1305	N13	W60	.875		26.0	29	SF	3	C		68		
HOLL	30	1359	1404	1421	N15	W32	.580		28.2	22	SF	3	C		50		
BIG8	30	1504	1522	1642	N30	E50	.836		3.4	98	SN	3	C	1522	120	1.3	
HOLL	30	1531	1532	1537	N13	E31	.556		2.0	6	SN	3	C		46		
RAMY	30	1532	1532	1538	N13	E31	.556		2.0	6	SF	3	C		30		
BIG8	30	1623	1827	2003	N14	W32	.574		28.4	100	SN	3	C	1827	70	.9	
PALE	30	1825	1830	1846	N13	W31	.556		28.4	21	SF	3	C		28		
BIG3	30	2155	2205	2222	S09	W03	.150		30.7	27	SN	3	C	2205	50	.5	
LEAR	31	0239	0240	0246	N02	W52	.789		27.2	7	SF	3	C		53		
WEND	31	0732	0708	0725	S05	W06	.127		30.8	23	SN		C	0708	50	.5	

Hα SOLAR FLARES

MAY 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
WEND	31	0756	0759	0805	N15	W40	.677		28.3	3	SF		C	0759	45	.6	
WEND	31	0759	0759	0824	S07	W08	.175		30.7	25	SN		C	0759	20	.2	
BIGR	31	1619	1620	1624	N05	W63	.893		27.0	5	SN	3	C	1620	60	1.4	

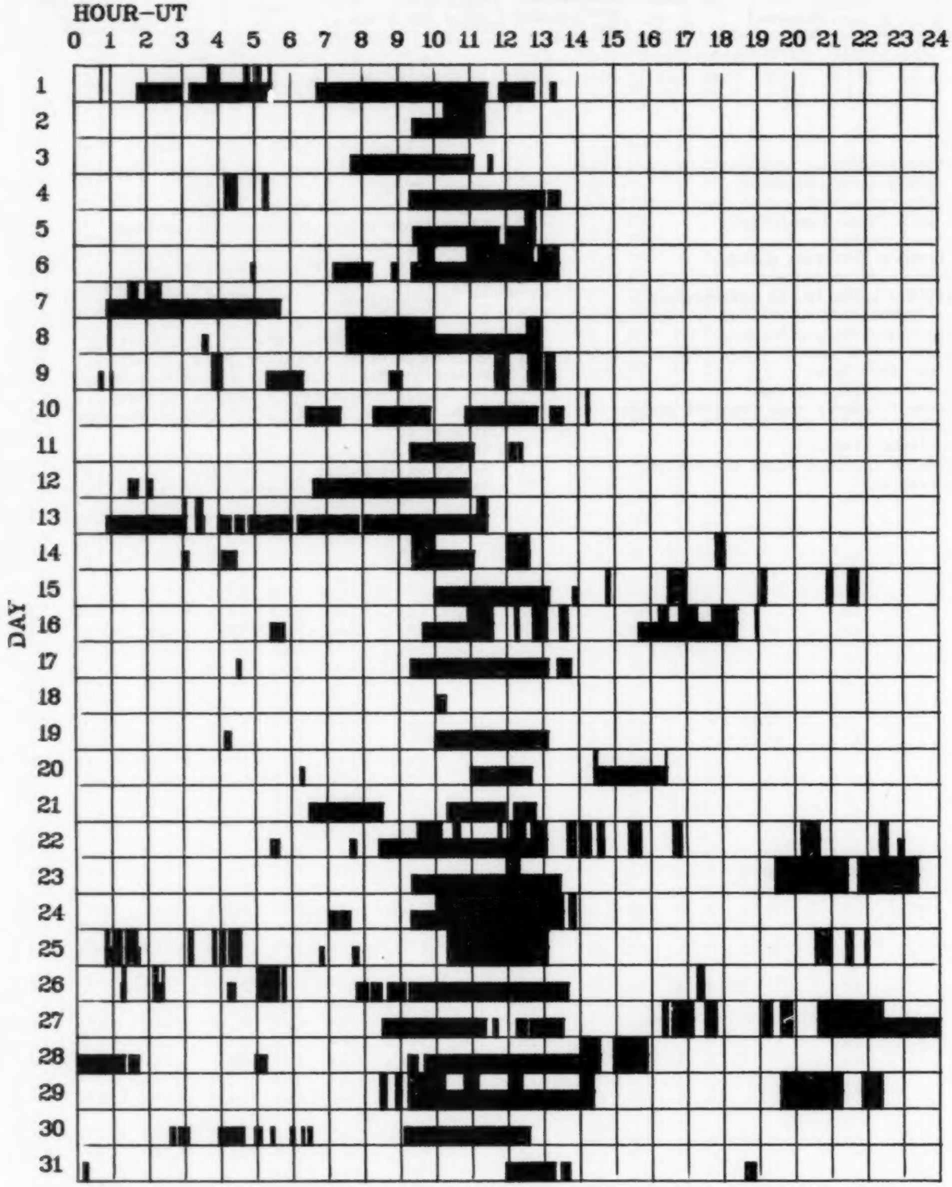
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MAY 1981



Observatories included in total patrol:

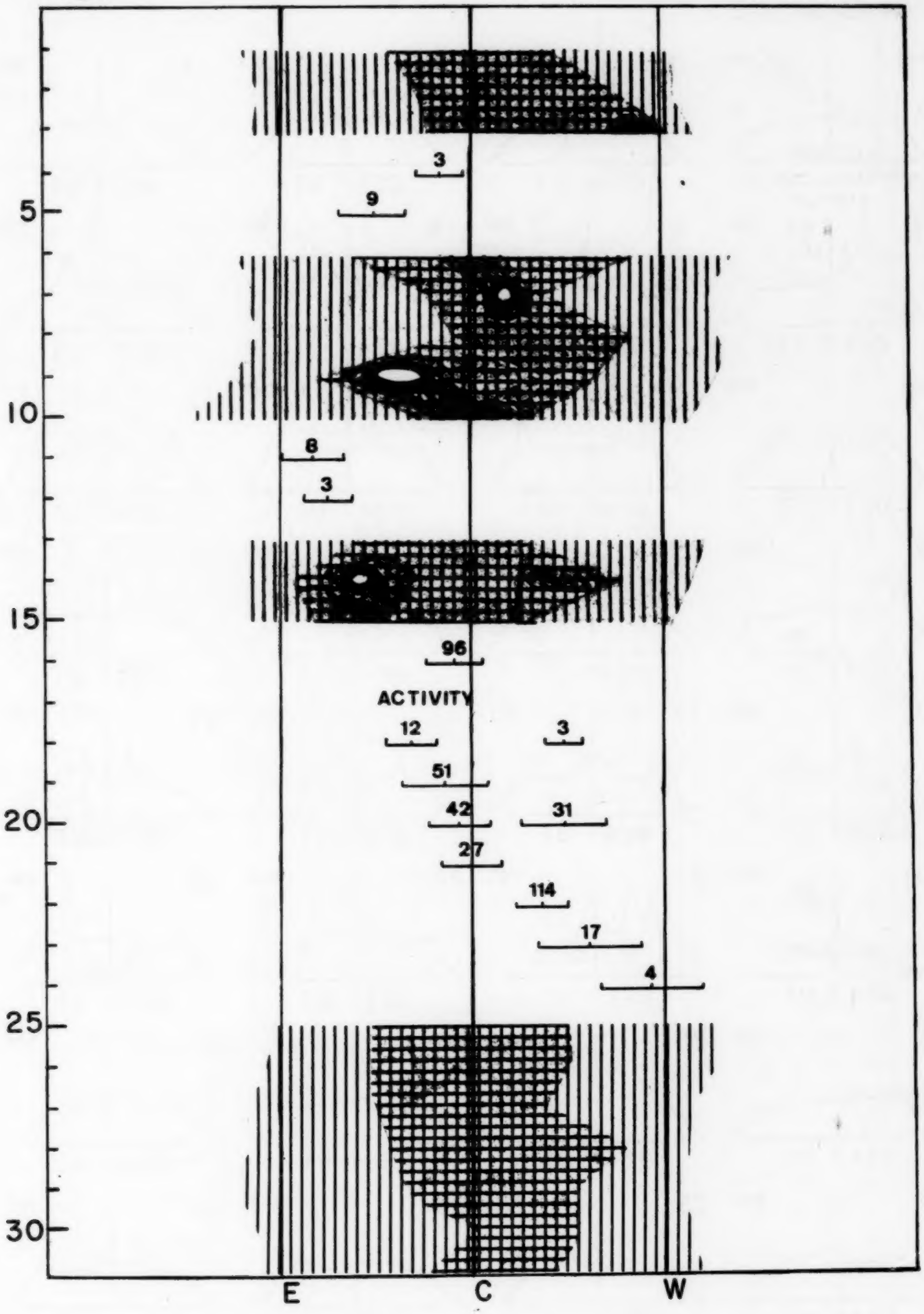
Athens	Bucharest	Learmonth	Monte Mario	Ramey
Big Bear	Holloman	Manila	Palehua	Upice
	Istanbul	Mitaka	Peking	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

MAY 1981

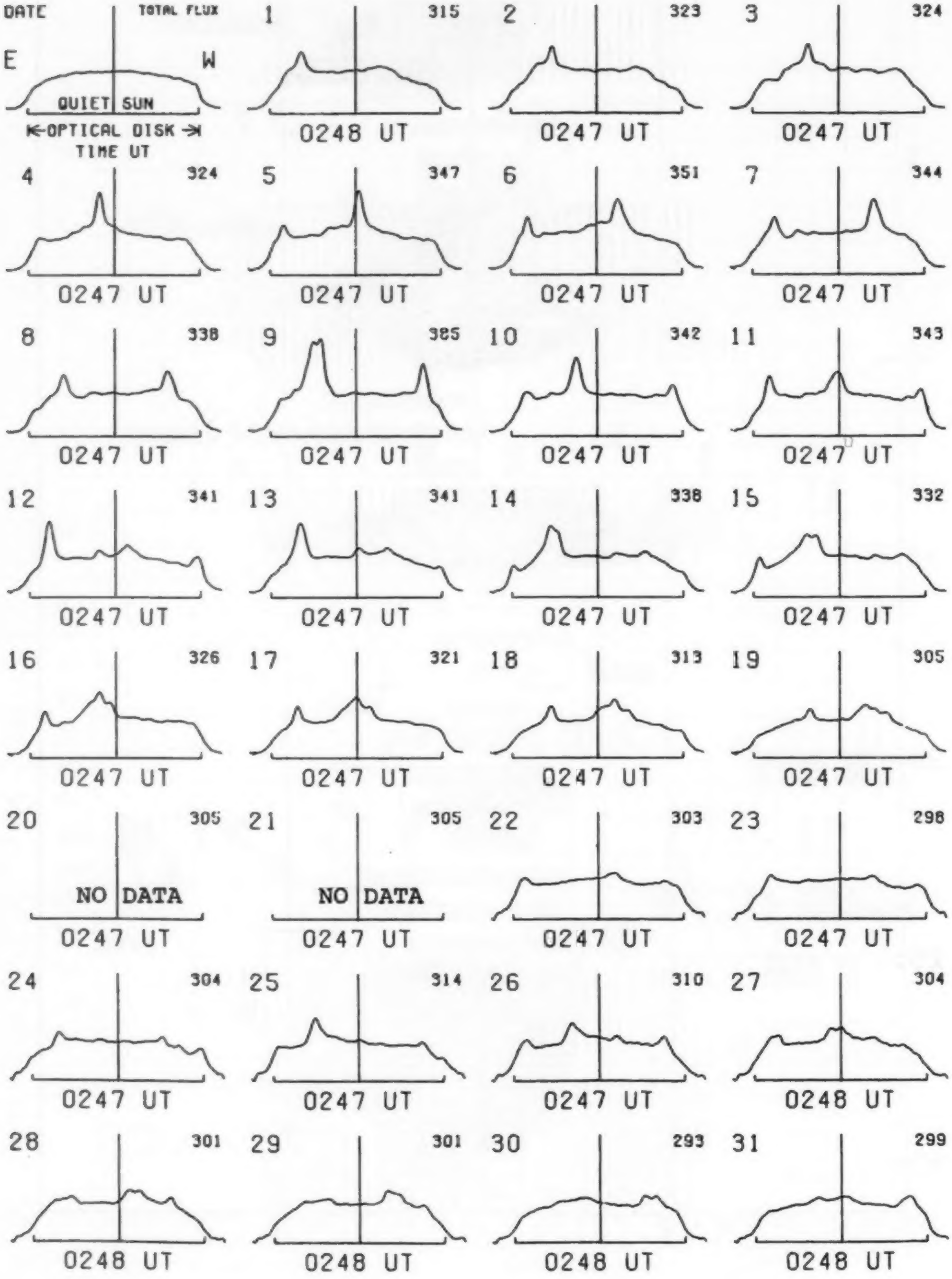
Nançay 169 MHz



EAST-WEST SOLAR SCANS
MAY 1981

TOYOKAWA.JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

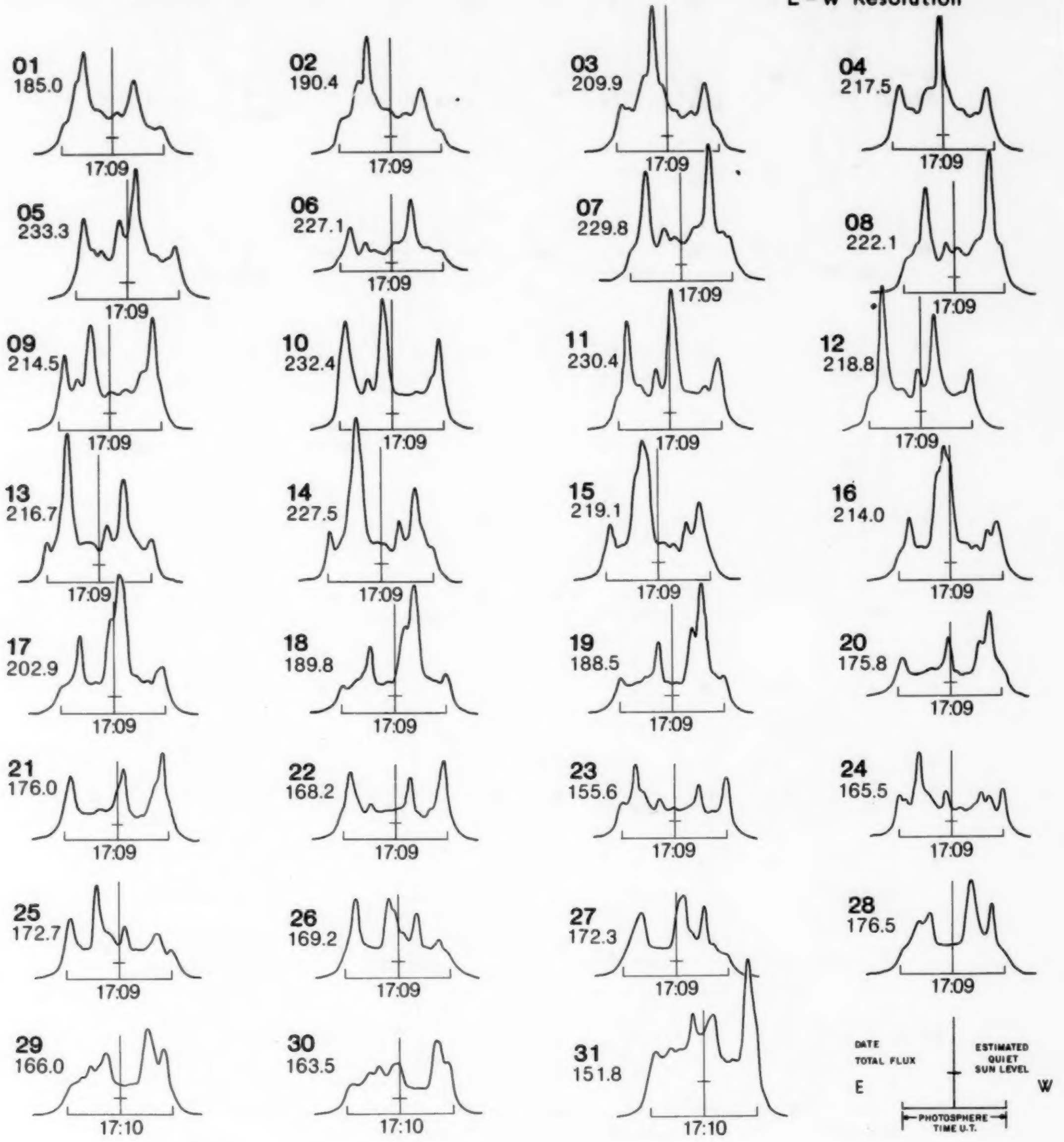


EAST-WEST SOLAR SCANS

MAY 1981

ALGONQUIN RADIO OBSERVATORY
CANADA

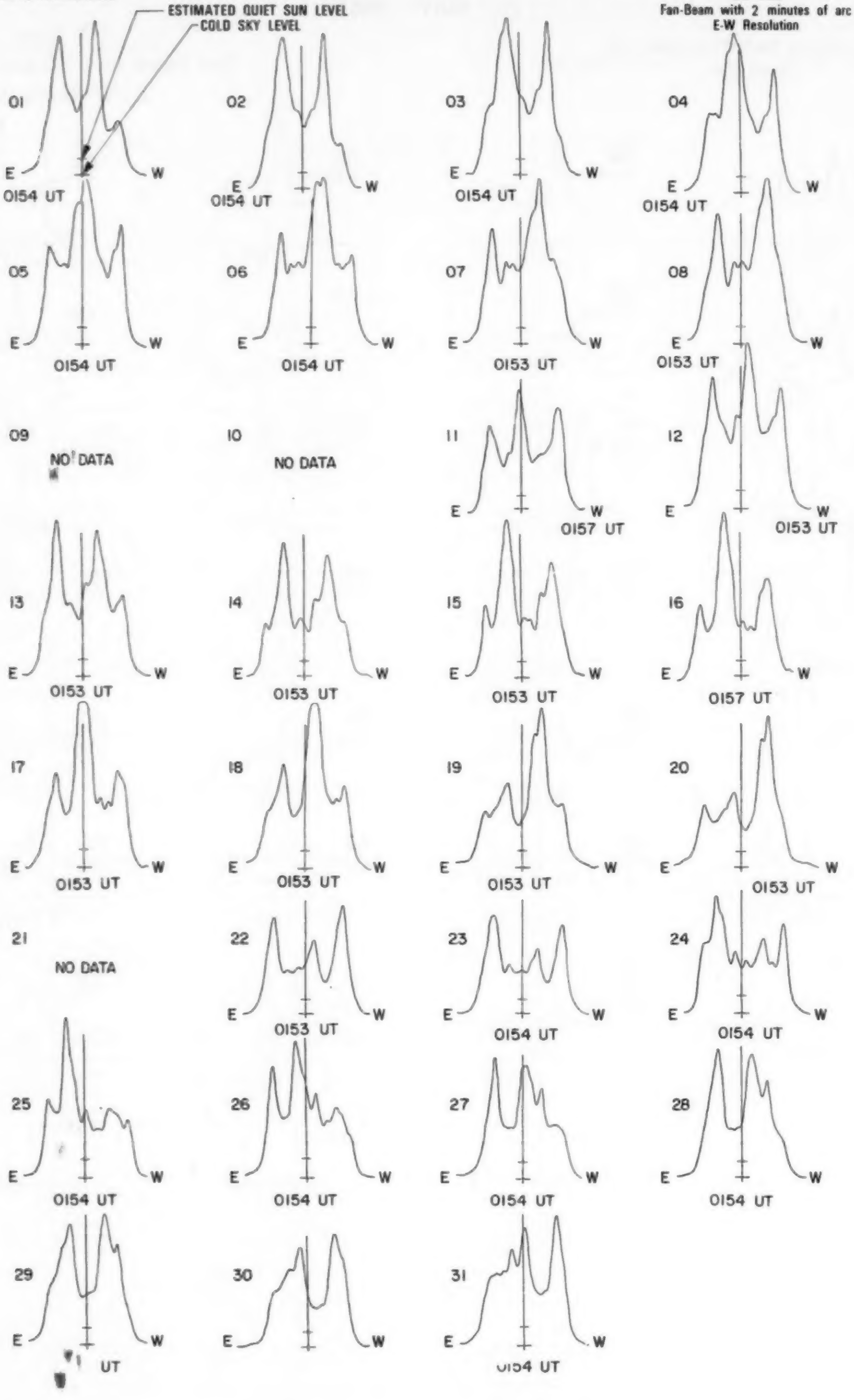
10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



EAST-WEST SOLAR SOLAR SCANS
MAY 1981

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc E-W Resolution

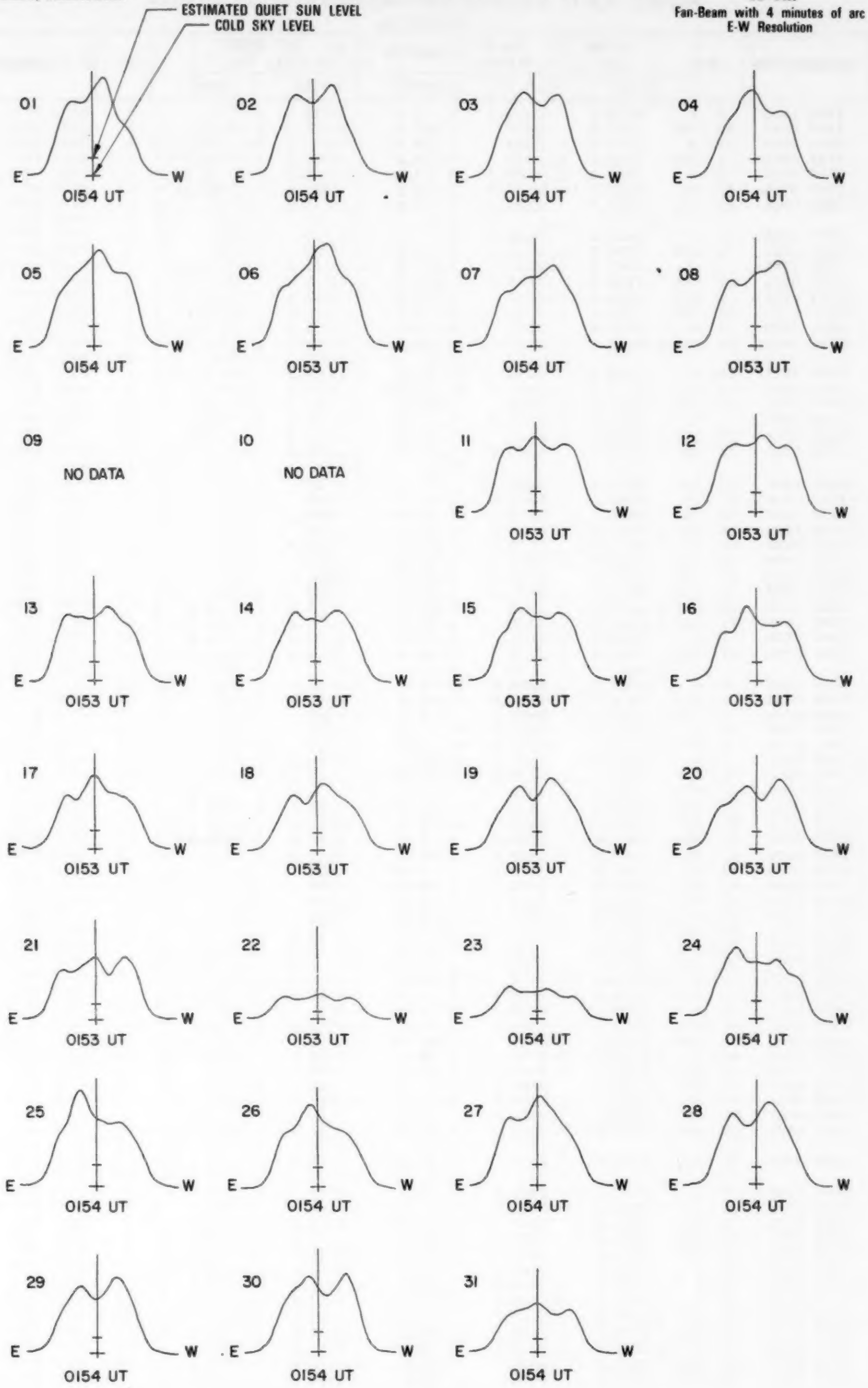


EAST-WEST SOLAR SCANS

MAY 1981

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1981

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
01	8800 LEAR	8 S	0110.1	0110.3	1.4	10			
	2800 OTTA	20 GRF	1305.0	1415	205.0	4.6	2.3		
	2800 OTTA	240 R	1705.0	1715	10.0	3.2	1.6		
	2800 OTTA	21 GRF	1725.0	1813	230.0	7.2	2.4		
	2800 OTTA	1 S	1808.0	1808.8	2.0	2.2	1.2		
	2800 OTTA	47 GB	2136.7	2137.9	4.0	765.0	69.0A		
	2800 OTTA	29 PBI	2140.7	2140.7	170.0	7.0			
02	2695 LEAR	8 S	0020.1	0020.3	.2	10			
	2695 LEAR	4 S/F	0158.8	0156.1	2.9	05			
	2800 OTTA	1 S	1340.0	1342	7.0	2.8	1.4		
	2800 OTTA	20 GRF	1420.0	1430	140.0	2.6	1.2		
	2800 OTTA	4 S/F	1729.0	1730	2.0	23.4	11.0		
	2800 OTTA	29 PBI	1731.0	1731	5.0	3.8	1.4		
	2800 OTTA	1 S	1938.0	1941	6.5	2.4	1.2		
	2800 OTTA	20 GRF	2023.0	2026	20.0	2.8	1.0		
03	2800 OTTA	240 R	1150.0	1235	45.0	4.4	2.2		
	2800 OTTA	20 GRF	1417.0	1417	23.0D	3.4			
	2800 OTTA	23 GRF	1450.0	2000	447.0	13.8	6.9		
	2800 OTTA	3 S	1941.0	1941.8	5.0	58.0	27.0		
	2800 OTTA	29 PBI	1946.0	1946	12.0	9.0	3.0		
	2800 OTTA	22 GRF	2123.5	2126.5	12.0	8.8			
04	8800 LEAR	47 GB	0500.0	0602.8	77.3	22			
	2695 LEAR	47 GB	0500.0	0602.8	81.1	20			
	8400 BERN	47 GB	0835.1	0839.8	60.0D	909.0			
	8800 ATHN	47 GB	0835.3	0839.1	45.5	1100			
	3200 BERN	46 C	0835.5	0838.8	210.0	290.0			
	2695 ATHN	4 S/F	0835.6	0839.6	27.0D	410			
	8800 LEAR	47 GB	0837.6	0839.8	10.0	1000			
	2695 LEAR	4 S/F	0837.8	0839.6	8.7	400			
	2800 OTTA	21 GRF	1210.0	1330	230.0	7.8	4.8		
	2800 OTTA	20 GRF	1445.0	1450	25.0	3.0	1.5		
	2800 OTTA	1 S	1800.0	1804	10.0	3.2	1.6		
	2800 OTTA	20 GRF	2100.0	2110	40.0	3.4	1.7		
05	8800 LEAR	8 S	0200.1	0200.8	2.0	23			
	8800 ATHN	4 S/F	0438.3	0439.6	2.8	23			
	8800 ATHN	4 S/F	0452.3	0457.5	7.3	100			
	8800 ATHN	8 S	0551.6	0551.8	.4	31			
	2695 ATHN	8 S	1217.5	1217.6	.8	11			
	2800 OTTA	3 S	1226.0	1227.1	10.0	13.6	3.4		
	2695 SGMR	4 S/F	1227.1	1228.1	2.2D	16			
	2800 OTTA	2 S/F	1357.0	1359	8.0	4.0	2.0		
	2800 OTTA	21 GRF	1406.0	1444	145.0	20.8	10.4		
	8400 BERN	47 GB	1407.0	1408.8	140.0	1078.0			
	2800 OTTA	47 GB	1407.0	1409.1	8.8	1195.0	226.0		
	3200 BERN	47 GB	1407.0	1409.1	140.0	827.0			
	8800 SGMR	47 GB	1407.0	1409.0	4.6D	970			
	2695 SGMR	47 GB	1407.0	1409.3	8.6D	730			
	8800 ATHN	47 GB	1411.6	1413.1	18.0	1100			
	2695 ATHN	47 GB	1411.8	1414.1	8.8D	1300			
	2800 OTTA	29 PBI	1415.0	1415	15.0	14.4	7.2		
	2800 OTTA	260 FAL	1810.0	1830	20.0	-2.2	-1.1		
	2800 OTTA	20 GRF	1835.0	1846	35.0	5.0	2.5		
	2695 PENT	1 S	2013.2	2014	6.0	3.0	1.5		
	2695 PENT	4 S/F	2149.8	2150.7	1.7	49.0	18.0		
	2695 PALE	8 S	2150.1	2150.8	1.0	31			
	2695 PENT	29 PBI	2151.5	2151.5	20.0	9.0	4.0		
	2695 PENT	21 GRF	2240.0	2400	190.0D	30.6			
	2695 PENT	46F C	2255.0	2304	20.0	88.0	48.6		
	2695 PALE	47 GB	2255.5	2303.8	23.1	98			
	2695 MANI	47 GB	2255.8	2304.0	13.7D	86			
	8800 MANI	47 GB	2256.0	2304.0	14.0	110			
	8800 PALE	47 GB	2256.1	2305.8	22.5	110			
	2695 PENT	29 PBI	2315.0	2315	35.0	23.0	9.8		
06	2800 OTTA	20 GRF	1845.0	1847	35.0	4.2	2.1		
07	8800 LEAR	8 S	0202.1	0202.3	.2	16			
	8800 ATHN	8 S	0502.3	0503.0	1.2	98			
	2800 OTTA	1 S	1135.0	1137	7.0	2.8	1.4		
	2800 OTTA	22 GRF	1205.0	1207.5	40.0	5.6	2.8		
	2800 OTTA	22 GRF	1500.0	1511	60.0	14.0	6.0		
	2695 PENT	1 S	1707.0	1707.4	1.0	3.2	1.6		
	2800 OTTA	1A S	1743.0	1743.5	2.0	2.2	1.1		
	2800 OTTA	8 S	1743.6	1743.6	.1	13.6			
	2800 OTTA	8 S	1747.0	1747.1	.3	3.2			
	2800 OTTA	32A ABS	1752.0	1820	66.0	-4.6	-2.3		
	2800 OTTA	1 S	1841.0	1841.1	1.0	4.6	2.3		
	2800 OTTA	22 GRF	1955.0	2000	20.0	2.8	1.4		
	2800 OTTA	260 FAL	2025.0	2050	25.0	-3.8	-1.9		
08	8800 LEAR	8 S	0007.6	0008.0	1.4	19			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
08	8800	LEAR	8	S	0218.1	0218.3	.2	16			
	8800	LEAR	8	S	0303.3	0303.6	.3	19			
	8400	BERN	4	S/F	0542.0	0542.7	3.0	101.0			
	3200	BERN	4	S/F	0542.1	0542.7	7.0	14.0			
	3200	BERN	2	S/F	1330.0	1333.5	7.0	6.0			
	8400	BERN	2	S/F	1332.5	1333.7	6.0	16.0			
	8800	ATHN	4	S/F	1333.1	1333.8	2.2	11			
	2800	OTTA	2	S/F	1333.3	1333.7	1.5	2.8	1.3		
	8800	ATHN	4	S/F	1359.8	1403.6	7.0	13			
	3200	BERN	1	S	1401.5	1403.6	5.0	8.0			
	8400	BERN	4	S/F	1401.7	1405.5	9.0	20.0			
	2695	ATHN	4	S/F	1402.8	1403.6	2.3D	05			
	8400	BERN	4	S/F	1459.5	1501.3	5.0	39.0			
	3200	BERN	3	S	1500.0	1501.3	5.0	44.0			
	8800	ATHN	4	S/F	1500.5	1501.1	6.6	32			
	2800	OTTA	3	S	1500.6	1501.3	5.0	47.6	8.0		
	2695	ATHN	4	S/F	1500.6	1501.3	4.2D	44			
	2695	SGMR	4	S/F	1500.6	1501.1	3.2D	57			
	8800	SGMR	8	S	1500.8	1501.3	1.8D	40			
	3200	BERN	45	C	1612.8	1618.5	25.0	46.0			
	8400	BERN	45	C	1613.0	1618.3	8.0	71.0			
	2800	OTTA	45	C	1613.5	1618.5	8.5	46.6	8.2		
	8800	ATHN	4	S/F	1613.8	1614.1	3.0	05			
	2695	SGMR	4	S/F	1616.5	1618.6	4.3D	47			
	8800	ATHN	4	S/F	1617.3	1618.3	3.8	49			
	8800	SGMR	4	S/F	1617.6	1618.5	3.7	63			
	2695	ATHN	4	S/F	1618.0	1618.3	2.3D	35			
	2800	OTTA	20	GRF	1655.0	1715	55.0	4.8	2.4		
	8800	SGMR	8	S	1738.1	1739.1	1.7D	38			
	8400	BERN	3	S	1738.4	1739.0	2.0	35.0			
	8800	PALE	4	S/F	1738.5	1739.1	3.5	40			
	2800	OTTA	22	GRF	1800.0	1825	35.0	2.4			
	2800	OTTA	1	S	1853.5	1854.3	2.5	3.4	1.6		
	2800	OTTA	2	S/F	1929.0	1929.1	1.0	9.6	3.2		
	2800	OTTA	24O	R	2055.0	2058	3.0	4.0			
	2800	OTTA	28	PRE	2150.0	2206.5	17.0	12.8			
	2800	OTTA	47	GB	2207.0	2235	83.0	1065.0	244.0		
	2695	PALE	47	GB	2207.1	2234.5	57.9D	910			
	2695	MANI	47	GB	2214.0	2234.8	78.0D	820			
	8800	MANI	47	GB	2214.5	2234.8	65.5	1700			
	8800	PALE	47	GB	2215.1	2234.3	159.9D	1100			
	8800	LEAR	47	GB	2310.0E	2319.6	621.0D	130			
	2695	LEAR	47	GB	2310.0E	2316.3	621.0D	180			
	2695	PENT	29	PBI	2330.0	2330	130.0D	67.4			
09	2695	LEAR	8	S	0157.8	0158.6	1.7	11			
	2695	MANI	4	S/F	0243.1	0246.5	12.9D	320			
	8800	MANI	4	S/F	0245.1	0246.5	5.7	330			
	8800	PALE	47	GB	0246.8	0247.6	4.2	540			
	2695	PALE	4	S/F	0246.8	0247.8	4.5	350			
	2800	OTTA	21	GRF	1255.0	1335	135.0	6.4	4.0		
	2800	OTTA	3	S	1325.2	1325.5	4.0	10.4	2.6		
	2800	OTTA	21	GRF	1610.0	1640	95.0	5.8	2.8		
	2800	OTTA	1	S	1715.0	1718	6.0	6.8	3.0		
	2695	PALE	4	S/F	1715.0	1718.3	4.8	15			
	2800	OTTA	1	S	1728.0	1728.3	1.0	2.2	1.1		
	2800	OTTA	21	GRF	2100.0	2150	110.0	6.8	2.3		
	8800	PALE	8	S	2144.6	2145.3	1.7	23			
	8800	PALE	47	GB	2203.5	2205.1	17.5	119			
	2695	PALE	47	GB	2208.6	2209.3	.2	15			
	2800	OTTA	3	S	2218.0	2219.2	2.5	10.4	5.2		
	2800	OTTA	29	PBI	2220.5	2220.5	27.0	4.0	2.0		
	2695	PENT	21	GRF	2255.0	2310	55.0	6.4	3.2		
	8800	PALE	47	GB	2303.8	2305.3	3.5	33			
	2695	PENT	1	S	2305.0	2305.5	1.0	2.6	1.2		
10	3200	BERN	22	GRF	0500.0	0533.3	63.0	86.0			
	8400	BERN	22	GRF	0500.0	0533.3	42.0	88.0			
	8800	ATHN	4	S/F	0501.1	0533.3	47.7	78			
	8800	LEAR	47	GB	0502.1	0504.5	15.0	69			
	2695	ATHN	4	S/F	0532.3	0533.3	13.3D	190			
	2695	LEAR	8	S	0532.5	0533.3	1.1	200			
	8800	LEAR	8	S	0532.5	0533.1	1.3	88			
	2695	LEAR	4	S/F	0714.6	0729.8	34.7	33			
	8800	LEAR	4	S/F	0715.1	0726.3	25.0	13			
	2695	ATHN	4	S/F	0932.3	0533.3		190			
	3200	BERN	47	GB	1141.0	1231.3	360.0	1720.0			
	8400	BERN	47	GB	1141.0	1231.3	360.0	2141.0			
	2800	OTTA	28	PRE	1150.0	1202	12.0	5.4	3.0		
	2695	ATHN	47	GB	1201.6	1231.3	135.9D	1700			
	2800	OTTA	47	GB	1202.0	1232	101.0	2050.0	583.0		
	8800	ATHN	47	GB	1205.6	1231.8	131.9	2900			
	8800	SGMR	47	GB	1207.3	1232.0	103.7D	2500			
	2695	SGMR	47	GB	1207.5	1232.0	103.6D	1000			
	2800	OTTA	30	PBI	1343.0	1343	467.0	104.0	23.0		

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
10	2800 OTTA	47 GB	1351.0	1353.7	5.0	587.0	198.0		
	2695 SGMR	4 S/F	1351.1	1354.8	5.2	400			
	2800 OTTA	20 GRF	1520.0	1524	15.0	12.6	3.8		
	2800 OTTA	20 GRF	1542.0	1544	15.0	4.6	2.3		
	2800 OTTA	21 GRF	1846.0	1850	24.0	4.0	1.8		
	2800 OTTA	8 S	1907.2	1907.3	.3	2.2			
	2800 OTTA	1 S	1933.0	1933.3	2.0	2.8	1.4		
	2695 PENT	45 C	1959.0	2001	6.0	12.0	5.0		
	2800 OTTA	3 S	2231.0	2232.5	3.0	11.4	7.6		
	2800 OTTA	29 PBI	2234.0	2234	35.0	4.6	2.6		
	2695 PENT	23 GRF	2315.0	2430	115.0	8.0	4.0		
	2695 PENT	1 S	2319.4	2319.9	5.0	7.0	3.2		
11	2695 PENT	20 GRF	0118.0	0122	20.0	4.6			
	2695 PALE	8 S	0237.6	0238.0	.2	13			
	8800 LEAR	4 S/F	0253.8	0255.6	5.8	23			
	2695 LEAR	4 S/F	0254.0	0256.6	9.8	15			
	8800 PALE	4 S/F	0255.1	0255.6	3.2	27			
	2695 PALE	8 S	0256.3	0256.6	2.0	23			
	2695 PALE	8 S	0327.0	0327.1	.3	18			
	8800 PALE	8 S	0327.0	0327.1	.3	23			
	2695 PALE	4 S/F	0330.3	0332.0	2.2	22			
	8800 PALE	8 S	0331.5	0332.0	1.6	35			
	2695 LEAR	8 S	0331.6	0332.1	.7	11			
	8800 LEAR	8 S	0331.6	0332.1	.9	25			
	8800 LEAR	8 S	0412.5	0412.6	.8	20			
	8800 LEAR	8 S	0529.8	0530.1	1.0	26			
	2695 MANI	4 S/F	0541.8	0545.1	9.7D	86			
	3200 BERN	45 C	0542.0	0545.7	11.0				ONLY PAPER REC
	8800 MANI	4 S/F	0544.1	0545.1	6.7	47			
	8400 BERN	45 C	0544.8	0545.7	5.0	43.0			ONLY PAPER REC
	8800 ATHN	4 S/F	0545.5	0545.8	3.5	47			
	8800 LEAR	47 GB	0545.6	0545.8	3.0	47			
	2695 LEAR	4 S/F	0545.6	0545.8	3.2	88			
	8800 LEAR	8 S	0610.8	0611.1	.3	18			
	8800 LEAR	8 S	0616.6	0616.8	.2	16			
	3200 BERN	1 S	0717.5	0718.5	5.0				ONLY PAPER REC
	8800 LEAR	8 S	0717.6	0718.8	2.0	08			
	2695 LEAR	8 S	0718.3	0718.8	.2	16			
	2695 ATHN	4 S/F	0945.8	0546.1	694.6D	74			
	2800 OTTA	20 GRF	1300.0	1304	60.0	3.6	1.8		
	2800 OTTA	1 S	1403.0	1404.5	2.5	2.0	1.0		
	2800 OTTA	21 GRF	1530.0	1650	125.0	9.2	5.0		
	2695 ATHN	4 S/F	1532.6	1535.3	8.0D	21			
	2800 OTTA	3 S	1532.7	1533.2	1.0	10.0	4.6		
	2800 OTTA	8 S	1534.8	1535.2	.8	20.6			
	3200 BERN	23 GRF	1556.0	1608.3	30.0	.0			ONLY PAPER REC
	2800 OTTA	1 S	1556.0	1557.8	4.0	9.2	3.0		
	8400 BERN	23 GRF	1556.0	1608.3	30.0	32.0			ONLY PAPER REC
	2695 SGMR	8 S	1557.3	1557.8	1.5D	09			
	2800 OTTA	1 S	1603.1	1603.4	1.0	7.2	3.0		
	8800 ATHN	4 S/F	1606.8	1608.3	5.8	37			
	2800 OTTA	3 S	1607.0	1608.4	3.0	22.8	5.7		
	2695 ATHN	4 S/F	1607.6	1608.0	5.5D	28			
	2695 PALE	8 S	1719.6	1719.8	.7	25			
	8800 PALE	8 S	1719.6	1719.8	.5	15			
	2800 OTTA	1 S	1731.0	1731.3	1.0	2.8	1.4		
	2800 OTTA	1 S	1825.0	1826.7	3.0	4.6	2.0		
	2800 OTTA	1 S	1946.0	1948.3	4.0	4.6	2.0		
	2800 OTTA	20 GRF	2010.0	2015	25.0	3.6	1.8		
	2695 PENT	21 GRF	2145.0	2256	130.0	8.2	3.8		
	2695 PENT	1 S	2253.0	2254	2.0	3.6	1.8		
12	2695 PENT	23 GRF	0004.0	0105	100.0D	9.6			
	2695 PENT	3 S	0100.0	0101	2.5	11.0	3.8		
	2800 OTTA	20 GRF	1330.0	1337	20.0	3.6	1.6		
	2800 OTTA	26A FAL	1610.0	1650	40.0	-4.6	-2.3		
	2800 OTTA	8 S	1646.7	1647	.5	2.2	1.1		
	2800 OTTA	20 GRF	1835.0	1844	20.0	2.2	1.1		
	2800 OTTA	1 S	2040.0	2046	10.0	3.2	1.2		
13	8800 MANI	47 GB	0330.0	0418.5	98.5	4400			
	8800 ATHN	47 GB	0354.1E	0420.3	76.4	4600			
	2800 OTTA	20 GRF	1145.0	1205	55.0	3.2	1.8		
	2800 OTTA	20 GRF	1430.0	1610	125.0	4.6	2.0		
	8400 BERN	3 S	1442.1	1444.0	3.0	46.0			
	3200 BERN	3 S	1443.5	1444.0	1.0	.0			ONLY PAPER REC
	2800 OTTA	21 GRF	1755.0	1845	165.0	11.4	6.0		
	2800 OTTA	3 S	1758.0	1801.2	12.0	12.2	5.8		
	2695 PALE	8 S	1801.1	1802.1	1.4	20			
	2800 OTTA	1 S	1811.2	1811.8	2.0	3.6	1.8		
	2800 OTTA	20 GRF	2210.0	2230	40.0	3.4	1.7		
	2695 PENT	23 GRF	2300.0	2410	220.0D	11.2			
	2695 PENT	21 GRF	2323.0	2333	14.0	7.6	3.0		
	2695 PENT	1 S	2324.2	2325	1.8	6.4	3.0		

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ PEAK	MEAN	INT	REMARKS
13	8800	PALE	8	S	2324.6	2324.8	.4	18			
14	8800	MANI	47	GB	0314.3	0315.1	9.7	660			
	2695	LEAR	4	S/F	0314.3	0315.5	8.2	490			
	2695	MANI	4	S/F	0314.3	0315.3	9.7D	440			
	8800	LEAR	47	GB	0314.5	0315.3	10.3	770			
	8800	ATHN	47	GB	0553.3	0556.3	5.8	130			
	3200	BERN	20	GRF	0805.0	0848.6	180.0	.0			ONLY PAPER REC
	2695	LEAR	47	GB	0805.1	0849.1	76.2	190			
	8400	BERN	20	GRF	0832.0	0848.7	150.0	99.0			ONLY PAPER REC
	8800	LEAR	47	GB	0837.1	0848.6	36.0	83			
	2695	ATHN	4	S/F	0837.3	0849.0	50.8D	150			
	8800	ATHN	4	S/F	0840.6	0848.6	47.5	83			
	2800	OTTA	20	GRF	1135.0	1145	25.0	4.6	2.3		
	2800	OTTA	22	GRF	1250.0	1430	153.0	7.2			
	8400	BERN	3	S	1419.0	1422.3	34.0	40.0			
	8800	ATHN	4	S/F	1421.6	1422.3	5.9	38			
	2800	OTTA	21	GRF	1800.0	2015	250.0	11.2	3.8		
	8800	PALE	8	S	1934.0	1934.3	1.1	54			
	2800	OTTA	21	GRF	2122.0	2124	38.0	4.6	2.4		
	2800	OTTA	2	S/F	2126.5	2126.5	1.5	4.2	2.1		
15	8800	LEAR	8	S	0030.1	0030.5	.7	17			
	2695	LEAR	8	S	0415.6	0416.1	.2	13			
	2695	ATHN	4	S/F	0522.1	0523.0	5.5D	15			
	8800	LEAR	8	S	0523.1	0523.8	1.2	08			
	2695	LEAR	8	S	0523.1	0523.8	1.2	11			
	8800	LEAR	8	S	0621.1	0621.5	1.0	30			
	2695	LEAR	8	S	0621.1	0621.3	1.0	10			
	3200	BERN	3	S	0736.7	0739.0	25.0	.0			ONLY PAPER REC
	8400	BERN	3	S	0736.7	0738.6	20.0	50.0			ONLY PAPER REC
	2800	OTTA	20	GRF	1145.0	1350	340.0	15.6	7.8		
	2800	OTTA	20	GRF	1735.0	1810	55.0	2.4	1.2		
	2800	OTTA	21	GRF	1832.0	1947	190.0	4.8	2.4		
	2695	PALE	4	S/F	1853.3	1854.6	3.5	80			
	2800	OTTA	3	S	1853.3	1854.7	7.0	69.0	18.0		
	8800	PALE	4	S/F	1853.6	1854.6	6.0	20			
	2800	OTTA	21	GRF	2218.0	2300	70.0	3.4	2.0		
	2800	OTTA	1	S	2219.5	2220.8	2.5	7.8	2.6		
	2800	OTTA	1	S	2232.0	2233	5.0	3.4	1.8		
16	2695	PENT	21	GRF	0000.0		60.0	7.4			
	2695	PALE	4	S/F	0021.6	0023.3	6.4	13			
	8800	LEAR	4	S/F	0021.8	0023.1	13.7	130			
	2695	PENT	1	S	0022.0	0023.5	2.0	7.4	4.0		
	8800	PALE	8	S	0022.1	0023.1	1.7	119			
	2695	LEAR	8	S	0023.1	0023.3	.2	13			
	2695	LEAR	4	S/F	0034.8	0036.8	4.0	16			
	2695	PENT	45	C	0035.0	0036.5	3.0	3.6			
	8800	PALE	47	GB	0210.3	0210.8	2.5	580			
	8800	MANI	4	S/F	0210.3	0211.1	3.7	490			
	8800	ATHN	4	S/F	0403.0	0404.0	2.5	22			
	2695	ATHN	4	S/F	0403.1	0404.1	2.2D	09			
	8400	BERN	3	S	0551.1	0552.1	10.0U	56.0			
	8800	LEAR	8	S	0552.0	0552.1	.1	47			
	3200	BERN	47	GB	0807.1	0839.0	250.0				ONLY PAPER REC
	2695	LEAR	49	GB	0810.6	0839.3	83.4D	1399			
	8800	LEAR	49	GB	0813.0	0838.0	78.5	2100			
	8400	BERN	47	GB	0813.0	0839.0	210.0U	1955.0			
	2800	OTTA	8	S	1424.9	1424.9	.2	4.8			
	2800	OTTA	24O	R	2020.0	2100	40.0	3.4	1.8		
	2800	OTTA	21	GRF	2205.0	2220	60.0	2.6	1.3		
	2800	OTTA	1	S	2247.5	2248	1.2	7.4	3.7		
17	2695	PENT	21	GRF	0100.0	0120	40.0D	4.6			
	2695	PENT	3	S	0108.0	0112	7.0	13.6	6.0		
	2695	LEAR	4	S/F	0342.6	0343.3	2.9	11			
	8800	LEAR	4	S/F	0342.8	0343.3	2.7	08			
	2800	OTTA	20	GRF	1244.0	1249	60.0	6.2	2.8		
	2800	OTTA	20	GRF	1600.0	1615	50.0	2.8			
	2800	OTTA	20	GRF	1935.0	1946	75.0	11.8	4.0		
	2800	OTTA	23	GRF	2120.0	2130	65.0	9.0			
	2800	OTTA	45	C	2128.5	2130	6.0	14.2	4.7		
18	8800	LEAR	4	S/F	0017.3	0022.1	5.7	13			
	2695	LEAR	4	S/F	0017.3	0017.8	6.7	09			
	8800	LEAR	8	S	0021.8	0022.1	.2	13			
	2800	OTTA	27AF	RF	1320.0		215.0	3.8	3.5		
	2800	OTTA	24	R	1320.0	1346	26.0	3.8	1.9		
	2800	OTTA	24P	R	1346.0		180.0	3.8			
	3200	BERN	22	GRF	1437.0	1454.5	50.0				ONLY PAPER REC
	2800	OTTA	21	GRF	1440.0	1458	50.0	7.6	2.6		
	2800	OTTA	2	S/F	1449.0	1451.5	9.0	7.6	3.8		
	2800	OTTA	26	FAL	1646.0	1655	9.0	-3.8	-1.9		
	2800	OTTA	22	GRF	1734.0	1739.2	25.0	11.0	5.0		

SOLAR RADIO EMISSION
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MAY 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
18	2800	OTTA	22 GRF	1810.0	1828	35.0	4.8	2.2		
	2800	OTTA	4 S/F	1940.0	1943.3	6.0	36.0	12.0		
	2695	PALE	4 S/F	1942.0	1943.3	2.8	41			
	8800	PALE	8 S	1942.6	1943.3	1.8	41			
	2800	OTTA	29 PBI	1946.0	1946	45.0	8.6	3.0		
	2800	OTTA	22 GRF	2135.0	2151	65.0	4.8	2.0		
19	2800	OTTA	20 GRF	1422.0	1428	35.0	3.4	1.6		
	2800	OTTA	22 GRF	1605.0	1640	80.0	8.4	4.2		
	2800	OTTA	22 GRF	1845.0	1917	40.0	10.2	5.1		
	2800	OTTA	20 GRF	2120.0	2135	75.0	3.4	2.6		
	2695	PENT	240 R	2305.0	2320	15.0	5.2	2.6		
	2695	LEAR	8 S	2322.3	2322.6	.5	18			
	8800	LEAR	8 S	2322.3	2322.6	.7	29			
20	2695	PENT	240 R	0035.0	0050	15.0	3.6			
	2695	PALE	4 S/F	0255.3	0259.5	11.8	33			
	8800	PALE	4 S/F	0300.3	0300.8	7.7	18			
	2800	OTTA	20 GRF	1130.0	1200	70.0	4.2	2.1		
	2800	OTTA	20 GRF	2140.0	2150	55.0	6.4	2.6		
21	2695	PENT	20 GRF	0015.0	0040	55.0	6.8	3.2		
	2800	OTTA	240 R	1152.0	1156	4.0	3.4	1.7		
	2800	OTTA	21 GRF	1235.0	1350	235.0	8.6	6.0		
	2800	OTTA	1 S	1530.0	1535	10.0	2.6	1.3		
	2800	OTTA	20 GRF	1725.0	1740	50.0	4.2	2.0		
	2800	OTTA	260 FAL	1930.0	1940	10.0	-4.0	-2.0		
	2695	LEAR	4 S/F	2314.8	2315.6	4.8	21			
22	3200	BERN	45 C	0618.0	0623.2	25.0				ONLY PAPER REC
	2695	ATHN	4 S/F	0618.5	0623.5	10.5D	139			
	8800	ATHN	4 S/F	0620.1	0623.3	8.2	42			
	2695	LEAR	8 S	0631.0	0631.5	1.8	25			
	8800	LEAR	8 S	0631.1	0631.3	.9	01			
	2800	OTTA	20 GRF	1605.0	1630	110.0	3.0	1.8		
23	2800	OTTA	240 R	1800.0	1910	70.0	1.0	3.5		
24	2800	OTTA	23 GRF	1405.0	1420	100.0	6.8	3.6		
	2695	PENT	1 S	1412.0	1413	2.0	3.4	1.7		
	2800	OTTA	20 GRF	1825.0	1905	85.0	4.4	2.6		
	2800	OTTA	240 R	2105.0	2130	25.0	3.0	1.5		
	2800	OTTA	240 R	2215.0	2216	1.0	3.4	1.7		
	2695	PENT	20 GRF	2235.0	2340	105.0	2.8	1.6		
25	2695	PENT	20 GRF	0030.0	0105	60.0	2.8	2.1		
	2800	OTTA	27F RF	1105.0		465.0	5.8	4.3		
	2800	OTTA	24 R	1105.0	1135	30.0	5.0	2.9		
	2800	OTTA	24P R	1135.0		230.0	5.8			
	2800	OTTA	26 FAL	1525.0	1900	205.0	-5.8	-2.9		
	2800	OTTA	20 GRF	2015.0	2030	25.0	2.6	1.3		
	2695	PENT	20 GRF	2320.0	2405	120.0	3.6			
26	2800	OTTA	20 GRF	1220.0	1345	140.0	4.6	2.3		
	2800	OTTA	21 GRF	1723.0	1729	13.0	4.6	2.0		
	2800	OTTA	8 S	1728.5	1728.5	.1	7.4			
	2800	OTTA	20 GRF	2040.0	2117	90.0	4.4	2.2		
	2695	PENT	20 GRF	2340.0	2358	100.0	3.8	1.9		
27	2695	SGMR	8 S	1136.3	1136.8	2.0	38			
	8800	ATHN	8 S	1136.6	1137.3	1.4	16			
	2800	OTTA	40 F	1136.7	1137	1.0	69.0			
	2695	ATHN	8 S	1136.8	1137.1	1.5D	33			
	2800	OTTA	1A S	1338.0	1339.5	4.0	6.4	3.2		
	2695	SGMR	4 S/F	1338.0	1338.6	2.6	48			
	2800	OTTA	40 F	1338.3	1338.5	.8	76.0			
	2695	PENT	2 S/F	2341.0	2342.1	1.5	4.8			
28	3200	BERN	3 S	0605.8	0606.1	7.0				ONLY PAPER REC
	8800	LEAR	8 S	0606.0	0606.1	.6	19			
	2800	OTTA	27F RF	1140.0		240.0	3.8	3.4		
	2800	OTTA	24 R	1140.0	1145	5.0	3.8	1.9		
	2800	OTTA	24P R	1145.0		195.0	3.8			
	2800	OTTA	26 FAL	1500.0	1540	40.0	-3.8	-1.9		
	2800	OTTA	20 GRF	1740.0	1820	110.0	3.0	2.5		
	2695	PENT	20 GRF	2205.0	2240	90.0	2.2	1.1		
29	2695	PENT	20 GRF	0035.0	0045	35.0	3.2	1.6		
	2695	LEAR	4 S/F	0300.6	0308.0	10.4	08			
30	2695	LEAR	4 S/F	0837.8	0838.3	4.3	13			
	8800	LEAR	4 S/F	0837.8	0838.6	4.3	20			
	2800	OTTA	20 GRF	1450.0	1550	170.0	4.4	3.0		
31	2800	OTTA	24 R	1858.0	1922	24.0	2.8	1.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1981

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
31	┌2800 OTTA	27A RF	1858.0		177.0	2.8	2.5		
	└2800 OTTA	1 S	1859.0	1907	2.0	2.0	1.0		
	2800 OTTA	24P R	1922.0		138.0	2.8			
	2800 OTTA	26 FAL	2140.0	2155	15.0	2.8	1.4		

Observatories:

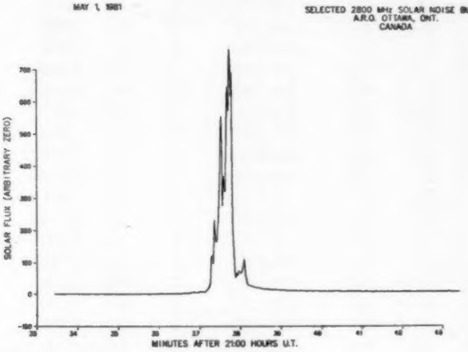
BERN = Berne MANI = Manila OTTA = Ottawa ARO · PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

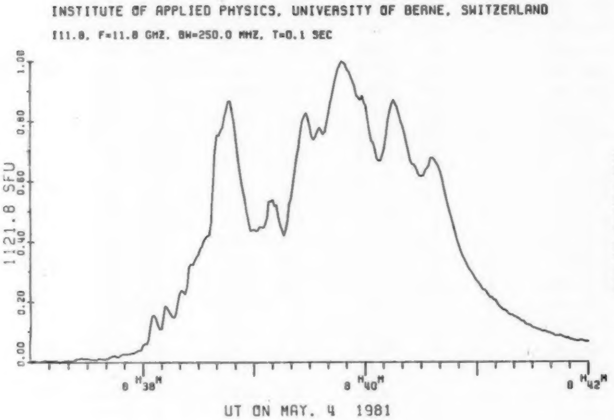
Explanation of Type Code:

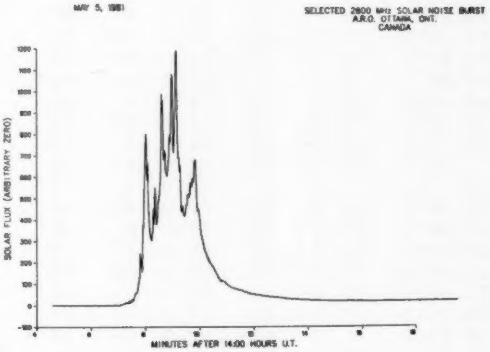
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

MAY 1-5, 1981

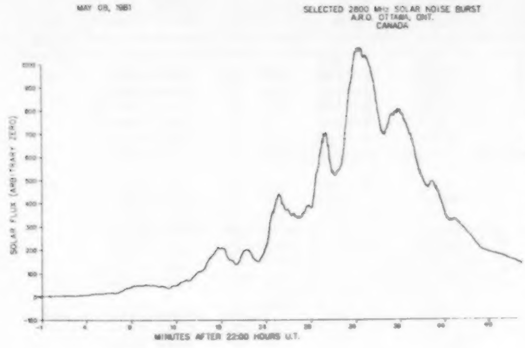


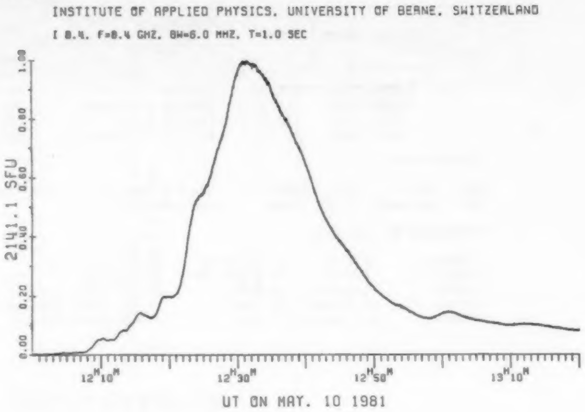


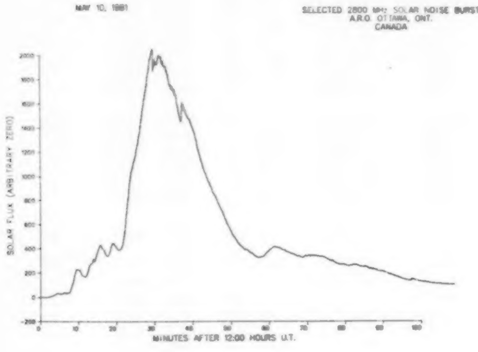


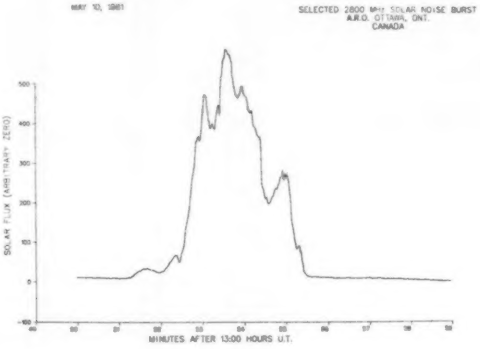
SELECTED SOLAR NOISE BURSTS

MAY 8-10, 1981









SOLAR WIND

Interplanetary Scintillations

MAY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810501	121	0	333	34	348	24	3	3C161	62	-22	0.88	-23	-2.41	1707.85
	121	17	620	69	594	55	2	3C459	50	7	0.77	39	2.23	1707.80
	121	19	459	11	489	11	3	3C48	22	62	0.37	21	-0.95	1707.88
	121	20	308	12	307	12	3	3C144-	42	-9	0.67	-47	-5.59	1707.98
	121	22	432	52	443	95	2	3C147	51	15	0.78	-35	-3.63	1707.97
	121	23	275	10	287	15	3	3C144	42	-9	0.67	-46	-5.78	1707.97
810502	122	0	378	26	337	43	3	3C161	61	-22	0.87	-24	-2.50	1707.91
	122	1	290	19	268	23	2	3C144+	42	-9	0.67	-47	-5.73	1707.98
	122	17	482	42	443	71	2	3C459	51	7	0.78	38	1.97	1707.81
	122	19	387	11	421	10	4	3C48	23	61	0.39	24	-1.17	1707.90
	122	20	353	16	322	14	3	3C144-	42	-9	0.67	-49	-5.50	1708.04
810503	123	0	337	12	297	11	2	3C161	60	-23	0.87	-24	-2.57	1707.93
	123	17	414	34	307	32	2	3C459	52	7	0.79	37	1.79	1707.83
	123	18	378	11	428	21	3	3C48	23	60	0.39	28	-0.91	1707.92
	123	20	397	53	433	44	2	3C144-	41	-9	0.66	-49	-5.37	1708.10
	123	23	258	31	236	29	2	3C144	40	-9	0.64	-50	-6.38	1708.04
810504	124	0	343	19	362	21	3	3C161	59	-23	0.86	-24	-2.62	1707.97
	124	1	286	17	253	15	2	3C144+	40	-9	0.64	-50	-6.13	1708.06
	124	20	240	14	237	11	3	3C144-	40	-9	0.64	-50	-6.62	1708.07
	124	22	348	15	263	31	2	3C147	49	17	0.75	-37	-4.13	1708.06
	124	23	252	14	261	14	3	3C144	39	-9	0.63	-49	-6.47	1708.08
810505	125	0	346	25	334	13	2	3C161	58	-24	0.85	-25	-2.73	1708.02
	125	1	289	20	286	18	3	3C144+	39	-9	0.63	-50	-6.21	1708.11
	125	2	380	45	337	11	2	3C216	83	2	1.01	-16	-1.18	1707.98
	125	17	390	29	436	105	2	3C459	54	6	0.81	36	1.74	1707.90
	125	19	473	18	482	18	3	3C48	24	57	0.41	33	0.16	1707.99
	125	20	218	11	276	13	2	3C144-	39	-9	0.63	-51	-7.10	1708.09
	125	22	331	22	314	21	2	3C147	48	17	0.74	-38	-4.33	1708.10
	125	23	309	15	308	15	3	3C144	38	-9	0.62	-50	-6.17	1708.15
810506	126	0	416	12	416	35	3	3C161	58	-24	0.85	-27	-2.73	1708.08
	126	1	268	12	251	18	2	3C144+	38	-9	0.62	-51	-6.56	1708.14
	126	16	273	11	278	12	2	3C459	55	6	0.82	34	1.29	1707.87
	126	18	385	23	414	44	2	3C48	24	56	0.41	35	-0.29	1708.01
	126	20	529	44	431	35	2	3C144-	38	-9	0.62	-52	-5.34	1708.25
	126	22	300	19	264	20	2	3C147	47	18	0.73	-38	-4.61	1708.12
	126	23	341	9	352	9	3	3C144	38	-9	0.62	-53	-6.14	1708.21
810507	127	0	356	12	355	16	3	3C161	57	-25	0.84	-25	-2.80	1708.10
	127	1	349	24	359	43	2	3C144+	37	-9	0.60	-52	-6.09	1708.22
	127	4	369	57	294	72	2	3C237	105	-6	1.12	-15	-0.57	1708.03
	127	16	364	14	368	14	2	3C459	56	6	0.83	33	1.56	1707.96
	127	18	362	10	412	11	3	3C48	24	55	0.41	37	-0.29	1708.03
	127	20	381	13	378	13	2	3C144-	37	-9	0.60	-53	-6.02	1708.26
	127	22	438	24	442	32	2	3C147	46	19	0.72	-38	-4.10	1708.21
	127	23	374	10	360	8	3	3C144	37	-9	0.60	-54	-6.11	1708.26
	127	23	552	65	561	335	2	3C161	56	-25	0.83	-27	-2.69	1708.19
810508	128	15	345	29	331	31	2	3C446	72	0	0.95	19	1.12	1708.01
	128	17	397	23	403	24	3	3C459	57	6	0.84	33	1.68	1708.02
	128	18	322	9	348	9	4	3C48	25	53	0.42	38	-0.48	1708.06
	128	20	298	12	280	11	2	3C144-	36	-9	0.59	-54	-6.70	1708.27
	128	21	297	13	287	9	2	3C147	45	19	0.71	-38	-4.75	1708.20
	128	22	255	56	267	32	2	3C144	36	-9	0.59	-54	-7.15	1708.25
810509	129	0	443	13	396	17	2	3C161	55	-26	0.82	-27	-2.84	1708.21
	129	1	308	78	278	42	2	3C144+	36	-9	0.59	-54	-6.65	1708.28
	129	2	402	56	389	13	2	3C216	79	2	0.99	-16	-1.30	1708.14
	129	4	403	10	432	19	2	3C237	103	-6	1.11	-15	-0.68	1708.12
	129	5	454	18	454	14	2	3C273	138	-3	1.24	-9	0.30	1708.11
	129	7	436	18	432	11	2	3C295	109	9	1.13	-7	-0.03	1708.11
	129	14	362	32	335	33	2	3C409	94	9	1.06	11	1.15	1708.05
	129	15	356	51	333	22	2	3C446	73	0	0.96	18	1.06	1708.05
	129	17	304	61	330	60	2	3C459	58	6	0.85	31	1.38	1708.01
	129	18	357	35	347	10	2	3C48	25	52	0.42	40	0.02	1708.09
	129	20	367	15	354	15	3	3C144-	35	-9	0.57	-55	-6.36	1708.34

SOLAR WIND
Interplanetary Scintillations
MAY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	129	22	475	40	414	25	2	3C147	45	20	0.71	-39	-4.14	1708.30
	129	23	722	21	725	21	2	3C144	35	-9	0.57	-55	-5.30	1708.39
810510	130	0	342	9	340	8	3	3C161	54	-26	0.81	-28	-3.17	1708.21
	130	1	538	20	544	20	2	3C144+	35	-9	0.57	-55	-5.66	1708.38
	130	4	372	19	488	197	2	3C237	102	-6	1.10	-15	-0.68	1708.14
	130	5	379	10	366	10	2	3C273	137	-3	1.24	-9	0.47	1708.11
	130	16	304	14	304	12	3	3C459	59	6	0.86	30	1.38	1708.04
	130	18	368	23	377	22	2	3C48	26	51	0.44	40	0.17	1708.13
	130	20	411	16	428	17	3	3C144-	34	-9	0.56	-56	-6.27	1708.39
	130	22	484	44	460	41	2	3C144	34	-9	0.56	-56	-5.97	1708.41
810511	131	0	450	9	434	8	3	3C161	54	-27	0.81	-29	-3.00	1708.29
810512	132	15	529	90	517	129	2	3C446	76	1	0.97	17	1.18	1708.22
	132	23	374	*	407	*	2	3C144	32	-9	0.53	-58	-6.79	1708.47
810513	133	1	317	*	310	*	2	3C144+	32	-9	0.53	-59	-7.23	1708.46
	133	4	492	31	473	29	2	3C273	135	-3	1.23	-10	0.08	1708.27
	133	18	371	27	379	25	3	3C48	28	47	0.47	43	0.59	1708.23
810514	134	16	386	24	475	44	2	3C459	63	5	0.89	27	1.47	1708.24
	134	18	405	11	425	11	2	3C48	28	46	0.47	44	0.86	1708.27
	134	20	429	16	435	17	3	3C144-	30	-9	0.50	-60	-6.76	1708.56
	134	21	314	49	492	44	2	3C147	41	24	0.66	-41	-5.17	1708.45
	134	22	391	17	406	18	3	3C144	30	-9	0.50	-60	-6.96	1708.56
810515	135	0	861	39	807	36	2	3C196	64	8	0.90	-24	-2.09	1708.48
	135	1	441	21	438	21	2	3C144+	30	-9	0.50	-59	-6.64	1708.57
	135	3	598	23	530	84	2	3C237	97	-5	1.08	-16	-0.99	1708.40
	135	5	655	17	638	16	2	3C273	133	-2	1.22	-9	-0.11	1708.39
	135	16	599	51	590	45	3	3C459	64	5	0.90	26	1.59	1708.33
	135	18	561	13	569	14	4	3C48	29	44	0.48	44	1.61	1708.33
	135	20	437	14	443	14	3	3C144-	29	-10	0.48	-61	-6.83	1708.60
	135	21	590	51	621	93	2	3C147	40	25	0.64	-41	-4.29	1708.55
	135	22	452	12	455	12	3	3C144	29	-10	0.48	-62	-6.84	1708.61
	135	23	427	12	461	13	3	3C161	50	-30	0.77	-31	-3.37	1708.48
810516	136	1	497	27	455	19	2	3C144+	29	-10	0.48	-61	-6.62	1708.62
	136	2	339	33	306	30	2	3C222	90	-7	1.04	-15	-0.94	1708.35
	136	18	628	64	679	15	3	3C48	30	43	0.50	44	1.81	1708.37
	136	19	691	76	698	77	2	3C144-	28	-10	0.47	-61	-6.10	1708.67
	136	23	494	30	451	13	3	3C161	49	-31	0.75	-31	-3.31	1708.53
810517	137	0	842	91	841	147	3	3C144+	28	-10	0.47	-61	-5.85	1708.69
	137	17	686	24	671	24	3	3C48	30	42	0.50	45	1.98	1708.41
	137	23	452	47	437	52	2	3C161	48	-31	0.74	-31	-3.43	1708.56
810518	138	1	577	*	569	*	2	3C216	71	4	0.95	-17	-1.48	1708.53
	138	16	480	18	449	22	2	3C459	66	4	0.91	23	1.35	1708.42
	138	18	572	15	535	12	3	3C48	31	41	0.52	44	1.75	1708.43
	138	19	347	16	328	16	2	3C144-	26	-10	0.44	-63	-7.79	1708.71
	138	22	311	45	310	75	2	3C144	26	-10	0.44	-63	-8.18	1708.70
810519	139	0	329	16	315	32	3	3C144+	26	-10	0.44	-64	-8.08	1708.71
	139	16	346	25	258	21	2	3C459	67	4	0.92	22	1.21	1708.41
	139	18	514	12	506	12	3	3C48	32	40	0.53	44	1.61	1708.46
	139	19	370	24	376	16	3	3C144-	25	-10	0.42	-64	-7.76	1708.76
	139	22	365	16	342	15	2	3C144	25	-10	0.42	-65	-7.90	1708.76
	139	23	450	15	635	57	2	3C161	47	-33	0.73	-31	-3.53	1708.64
810520	140	0	289	12	277	12	2	3C144+	25	-10	0.42	-63	-8.56	1708.74
	140	17	444	13	445	12	3	3C48	32	39	0.53	45	1.42	1708.48
	140	19	360	20	322	26	2	3C144-	24	-10	0.41	-65	-8.05	1708.80
	140	22	410	12	403	12	3	3C144	24	-10	0.41	-65	-7.64	1708.81
	140	23	346	23	454	31	2	3C161	46	-33	0.72	-32	-3.94	1708.65
810521	141	0	304	22	326	37	2	3C144+	24	-10	0.41	-65	-8.62	1708.79
810522	142	22	467	33	431	10	3	3C144	22	-10	0.37	-67	-7.62	1708.90
	142	23	497	15	471	38	3	3C161	45	-35	0.71	-32	-3.59	1708.77
810523	143	0	330	50	306	30	2	3C144+	22	-10	0.37	-67	-8.67	1708.88
	143	16	453	17	446	10	3	3C459	71	3	0.95	19	1.20	1708.60
	143	17	421	10	414	9	2	3C48	34	36	0.56	45	1.41	1708.59
	143	19	290	16	288	16	2	3C144-	21	-10	0.36	-68	-9.30	1708.91
	143	22	321	32	312	18	2	3C144	21	-11	0.36	-68	-8.90	1708.92

SOLAR WIND
Interplanetary Scintillations
MAY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	143	23	400	12	421	13	2	3C161	44	-36	0.69	-33	-3.97	1708.78
810524	144	5	237	8	206	19	2	3C283	140	-6	1.24	-8	1.32	1708.48
	144	15	544	16	483	14	2	3C459	72	3	0.95	19	1.20	1708.67
	144	17	438	18	413	10	3	3C48	35	35	0.57	44	1.51	1708.62
	144	19	333	12	325	15	2	3C144-	20	-11	0.34	-69	-8.92	1708.96
	144	20	440	17	367	32	2	3C147	35	34	0.57	-46	-5.29	1708.88
	144	22	301	8	304	8	3	3C144	20	-11	0.34	-68	-9.29	1708.96
	144	23	338	20	375	22	2	3C161	43	-36	0.68	-32	-4.22	1708.80
810525	145	1	333	25	287	13	2	3C216	65	7	0.91	-22	-2.25	1708.73
	145	15	449	25	371	11	2	3C459	73	3	0.96	17	1.08	1708.68
	145	17	393	9	381	9	3	3C48	36	34	0.59	44	1.33	1708.65
	145	23	337	29	286	45	2	3C161	43	-37	0.68	-33	-4.31	1708.84
810526	146	4	446	54	429	17	2	3C273	122	-1	1.19	-12	-0.16	1708.74
	146	5	367	12	387	10	2	3C283	138	-6	1.24	-7	0.61	1708.68
	146	17	414	11	411	10	4	3C48	37	33	0.60	43	1.41	1708.69
	146	19	429	73	435	72	2	3C144-	18	-11	0.31	-70	-8.35	1709.06
	146	21	366	7	376	8	4	3C144	18	-11	0.31	-71	-8.95	1709.06
	146	22	399	12	348	37	3	3C161	42	-38	0.67	-33	-4.06	1708.90
810527	147	0	519	54	470	62	2	3C144+	18	-11	0.31	-71	-7.90	1709.08
	147	2	288	30	286	80	2	3C237	85	-4	1.02	-16	-1.16	1708.73
	147	4	502	120	376	114	2	3C273	121	-1	1.18	-12	-0.30	1708.80
	147	6	415	11	318	50	2	3C298	140	2	1.24	-8	0.44	1708.75
	147	15	404	97	394	16	2	3C459	75	3	0.97	17	1.08	1708.73
	147	17	363	9	373	11	4	3C48	37	33	0.60	44	1.24	1708.71
	147	21	313	48	325	50	2	3C144	17	-11	0.29	-71	-9.66	1709.09
810528	148	6	399	11	333	71	2	3C298	139	2	1.24	-8	0.49	1708.78
	148	15	402	35	322	9	3	3C459	76	4	0.97	17	1.13	1708.77
	148	17	331	9	321	9	4	3C48	38	32	0.62	44	1.12	1708.74
	148	20	383	99	276	12	2	3C147	32	39	0.53	-44	-5.69	1709.02
	148	21	390	27	388	14	2	3C144	16	-12	0.28	-73	-9.01	1709.14
	148	22	380	16	372	26	3	3C161	41	-39	0.66	-34	-4.29	1708.97
810529	149	2	365	27	422	19	2	3C237	83	-4	1.01	-16	-1.23	1708.85
	149	14	446	72	352	42	2	3C446	92	2	1.05	16	1.43	1708.81
	149	15	502	20	460	25	3	3C459	77	4	0.98	18	1.22	1708.84
	149	17	345	8	342	8	4	3C48	39	31	0.63	43	1.20	1708.78
	149	22	372	12	448	46	2	3C161	40	-40	0.64	-33	-4.32	1709.00
810530	150	2	281	59	229	10	2	3C237	83	-4	1.01	-17	-1.24	1708.84
	150	3	456	72	320	116	2	3C273	118	-1	1.17	-13	-0.29	1708.90
	150	6	332	21	378	118	2	3C298	137	3	1.24	-8	0.68	1708.81
	150	15	404	37	391	78	3	3C459	78	4	0.98	17	1.15	1708.84
	150	17	330	10	331	18	4	3C48	40	30	0.64	42	1.10	1708.81
	150	22	321	9	354	31	3	3C161	40	-41	0.64	-33	-4.58	1709.02
	150	23	311	29	290	30	2	3C196	51	17	0.78	-35	-4.01	1708.99
810531	151	0	300	31	450	213	2	3C216	60	10	0.87	-27	-2.94	1708.95
	151	2	406	48	407	57	2	3C237	82	-4	1.00	-17	-1.33	1708.95
	151	4	381	21	370	20	3	3C273	117	-1	1.17	-13	-0.19	1708.90
	151	6	301	37	385	70	2	3C298	137	3	1.24	-8	0.79	1708.82
	151	15	369	81	362	84	3	3C459	79	4	0.99	17	1.17	1708.86
	151	17	350	7	341	7	4	3C48	41	30	0.66	40	1.20	1708.85
	151	22	377	9	428	41	3	3C161	39	-42	0.63	-33	-4.41	1709.08

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

INFERRED IP MAGNETIC FIELD

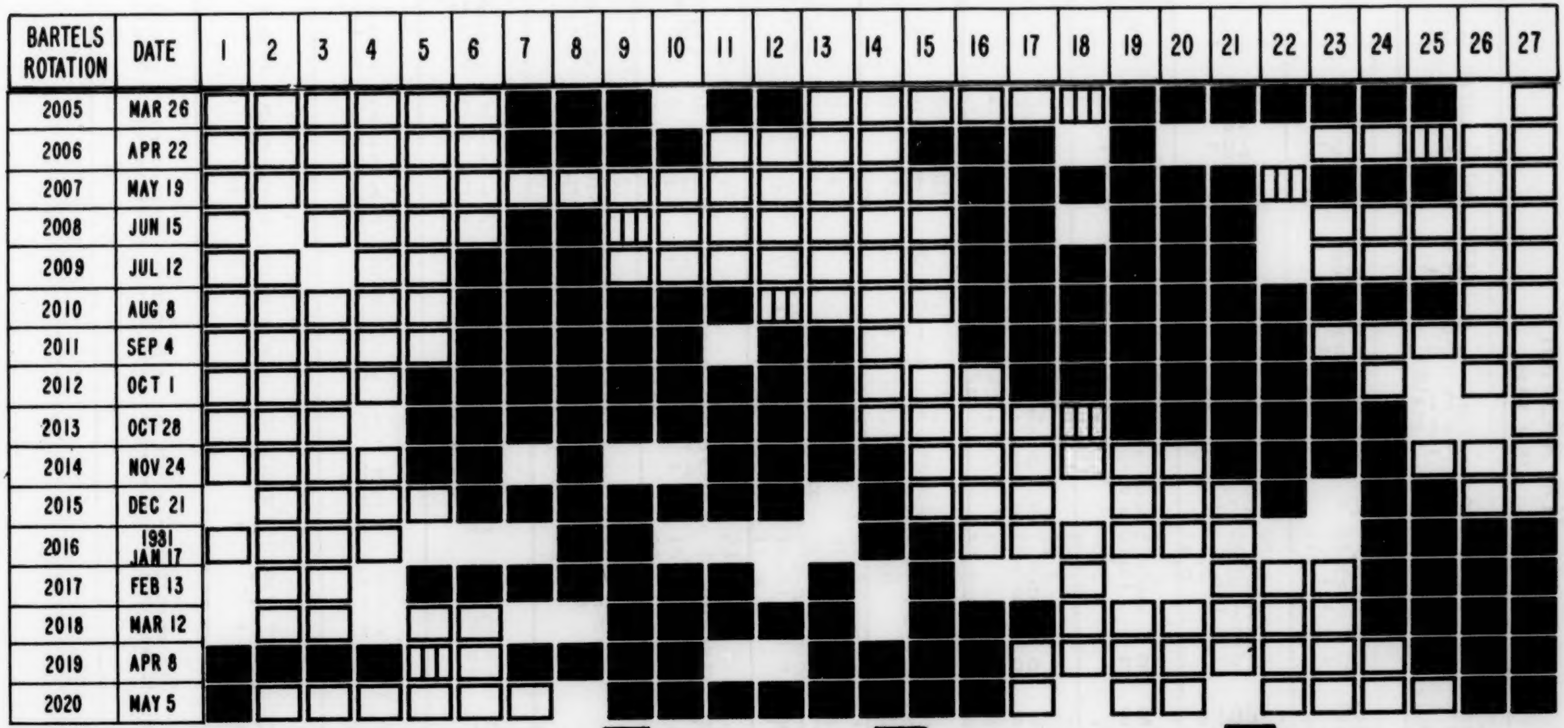
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2002	1980 JAN 10						AT	–		–			–	TA AT		T*		TA	AT							TA	A*	
2003	FEB 6		TA			–				A*							TA				–			*	TA	TA		
2004	MAR 4		AT		TA		AT	–	–	TA		–			T*		AT AT			TA		AT	AT	TA			TA –	–
2005	MAR 31		TA	AT AT	AT		AT	TA	T*			AT				TA TA				TA			TA	AT AT	AT AT	TA TA		
2006	APR 27		AT			AT –						TA	AT		TA			TA AT	AT						TA	AT	*	TA
2007	MAY 24			AT	AT			*	* –	–	–	– –	TA		AT				*	TA		–	TA		TA		– TA	
2008	JUN 20		–				AT		–	–					–	–							TA		TA		TA	
2009	JUL 17		–	AT		–						–			TA TA		–	AT AT			–		–	–	–	– A*	–	–
2010	AUG 13		AT					–	AT –							–		– AT					TA		–	A*		
2011 -	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT A*		A*							TA			TA			
2013	NOV 2	AT					TA	TA				AT A*									–	TA –	AT			TA		
2014	NOV 29				–					–	–				TA		TA TA		AT	–		AT			–		TA	
2015	DEC 26									–	–				–	TA –	TA –	–	–	–	–	–	–	AT	AT	–	–	–
2016	1981 JAN 22	TA –			AT T*		–		–	AT	TA				TA					–				AT				TA
2017	FEB 18			AT	TA									TA	TA		*							AT		TA		TA
2018	MAR 17							AT						–					TA				AT	–	–		TA	AT
2019	APR 13	TA	–	–	–						–				TA				*	AT	–		–		– AT		–	–
2020	MAY 10	– –	– –	– TA	AT	TA		–		TA			TA									*	*					

▒ = definitely towards the sun ☐ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: [open box] = FIELD >2μT, [hatched box] = -2μT ≤FIELD ≤2μT, [filled box] = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

DAY	1980 JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1981 JAN.	FEB.	MARCH	APRIL	MAY
01	37	-51	-5	-19	44	-41	-82	-111	33	.	75	2
02	13	.	.	5	59	-94	.	.	20	54	82	-51
03	-16	-25	8	8	53	-120	.	-33	64	.	31	-66
04	-45	-23	7	29	26	-123	-100	7	72	.	-23	-56
05	-57	-19	10	42	-4	-111	-97	46	58	102	-67	-24
06	-42	.	24	42	-36	-84	-67	66	28	81	-85	23
07	-25	8	53	23	-62	-99	-16	.	.	39	-97	25
08	-11	11	53	9	-73	-107	41	116	.	-11	-76	36
09	-1	13	44	-27	-72	-61	71	49	-6	-28	-40	45
10	-6	23	37	-68	-39	28	77	13	-24	-50	-28	49
11	-18	44	27	-77	-41	27	57	-29	-42	-58	-7	35
12	-4	42	8	-84	-45	38	28	.	-26	.	0	.
13	12	34	-37	-62	-10	26	3	-39	.	18	13	-76
14	56	.	-63	.	10	-1	-52	-13	15	35	-6	-147
15	54	57	-65	-39	38	-21	-93	8	24	.	-29	-131
16	.	26	-56	-16	20	-50	-86	18	.	37	-61	-94
17	63	-42	-44	7	-15	-68	-51	62	-8	12	-75	-50
18	71	-69	-24	.	-8	-81	26	67	-19	.	.	-47
19	55	-43	1	-18	-2	-63	37	67	-62	.	.	-53
20	15	5	23	-38	-16	-24	39	37	-65	-41	-85	-41
21	-40	32	24	-31	-14	.	.	.	-76	-80	-79	13
22	-43	47	11	-15	-17	.	51	.	-70	-119	-86	.
23	-1	53	-11	-7	-8	97	41	.	-68	-87	-51	72
24	33	57	-31	-22	31	80	28	-52	.	-81	5	61
25	49	53	-38	-21	.	70	7	-87	-75	.	43	.
26	37	27	-27	8	54	31	-13	.	.	-88	70	126
27	46	-8	-27	18	52	28	-20	.	-8	-52	67	109
28	54	-33	-18	18	48	-3	-42	.	.	-20	84	50
29	6	-42	-14	18	44	-26	-65	.		31	122	24
30	-22	-29	-18	25	57	.	-88	-59		45	61	-9
31		-6	-10		.		-95	-4		55		-4

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII

MAY 1981

DATE MAY '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	1337	169.	425.	61.8	0.099
2	1112		392.	17.	.285
3	0717		566.	7.2	.615
4	1049		423.	20.4	.171
5	1558		724.	45.9	.094
6	1038		769.	1.6	.149
7	2015		518.	4.9	.199
8	1607		406.	12.2	.098
9	1555		568.	35.1	.042
10	1157		482.	6.2	.009
11	1256		426.	102.2	.033
12	0724		505.	94.3	.029
13	0705		386.	22.8	.085
14	1340		393.	24.	.139
15	0009	258.	367.	18.1	.066
16	1011		343.	16.1	.045
17	0055		350.	21.3	.086
18	0742		323.	27.8	.038
19	0026		335.	21.1	.036
20	1436		319.	31.4	.085
21	0046		312.	25.7	.045
22	1801		471.	18.6	.216
23	0427		458.	11.8	.069
24	0944		398.	23.8	.104
25	1104		390.	7.3	.084
26	0534		327.	16.5	.037
27	1558		414.	27.5	.146
28	1528		530.	16.9	.404
29	0044		503.	15.5	.113
30	0455		440.	8.4	.136
31	0019		408.	7.3	.069

BOULDER GEOMAGNETIC SUBSTORM LOG

MAY 1981

DATE	ONSET TIME	DIR	COMMENTS
05/01			Field unsettled after 0600 UT.
	1125		SS localized vicinity College.
	1235	West	
	1820		Weak SS.
	1850		Polar Cap SS.
05/02	0855		Weak SS, localized College to Arctic Village.
	1200		Weak SS, slow onset.
05/03	0710		Weak SS.
	0755	West	
	1425		Weak SS.
05/04			Field slightly unsettled.
05/05			Field generally quiet.
	1235		Weak SS.
05/06			Field slightly unsettled.
05/07			Field slightly unsettled.
05/08			Field intermittently unsettled.
	1225		Weak SS.
	1925		Weak negative impulse H-component all mid/low latitude stations.
05/09			Mag storm conditions exist through 1400 UT.
05/10			Field unsettled throughout 2200 UT.
	1735		
	2208	Strong SSC	Immediate onset of moderate SS. Mag storm follows.
05/11			Mag storm conditions through 1600 UT.
05/12			Field intermittently unsettled.
	1510		SS effect along the oval stations.
05/13	0415	East	Slow onset.
05/14	0500	East	
	1125	West	
	1855		Positive impulse H-component all mid/low latitude stations. Field unsettled balance of day.
05/15			Minor magstorm conditions after 0200 UT.
	0600	≈ center	Strong response Boulder all three field components.
	1215	West	
05/16			Minor magstorm conditions exist through 2000 UT.
05/17			Field intermittently unsettled.
	1345		Slow onset.
	2302	SSC	
05/18			Mag storm conditions exist with field recovery near 2100 UT.
05/19	0615	≈ center	
	1100	West	
	1405		Several minor injections with recovery near 1830 UT.
05/20			Minor magstorm conditions exist throughout day.
05/21	0930		Weak SS.
05/22			Field intermittently unsettled.
	0845		Weak SS.
05/23			Active conditions exist along auroral zone 0700-1900 UT.
	0735	West	
	1040	West	
	1325		Slow onset.
05/24			Field unsettled throughout day.
	0230	East	
	1345	West	Several injections with recovery near 1130 UT.
05/25			Field unsettled throughout day. Spatial and temporal SS activity too varied to annotate in log.
05/26			Field slightly unsettled.
05/27			Field slightly unsettled.
05/28			Field intermittently unsettled.
	0415	East	
	1125		Weak SS.
05/29			Field intermittently unsettled.
	0705		Slow onset, several minor injections with recovery near 0930 UT.
05/30			Field intermittently unsettled with no significant SS activity.
05/31			Field intermittently unsettled with no significant SS activity.

SGD 442 Part I (Prompt)

APRIL 1981 DATA

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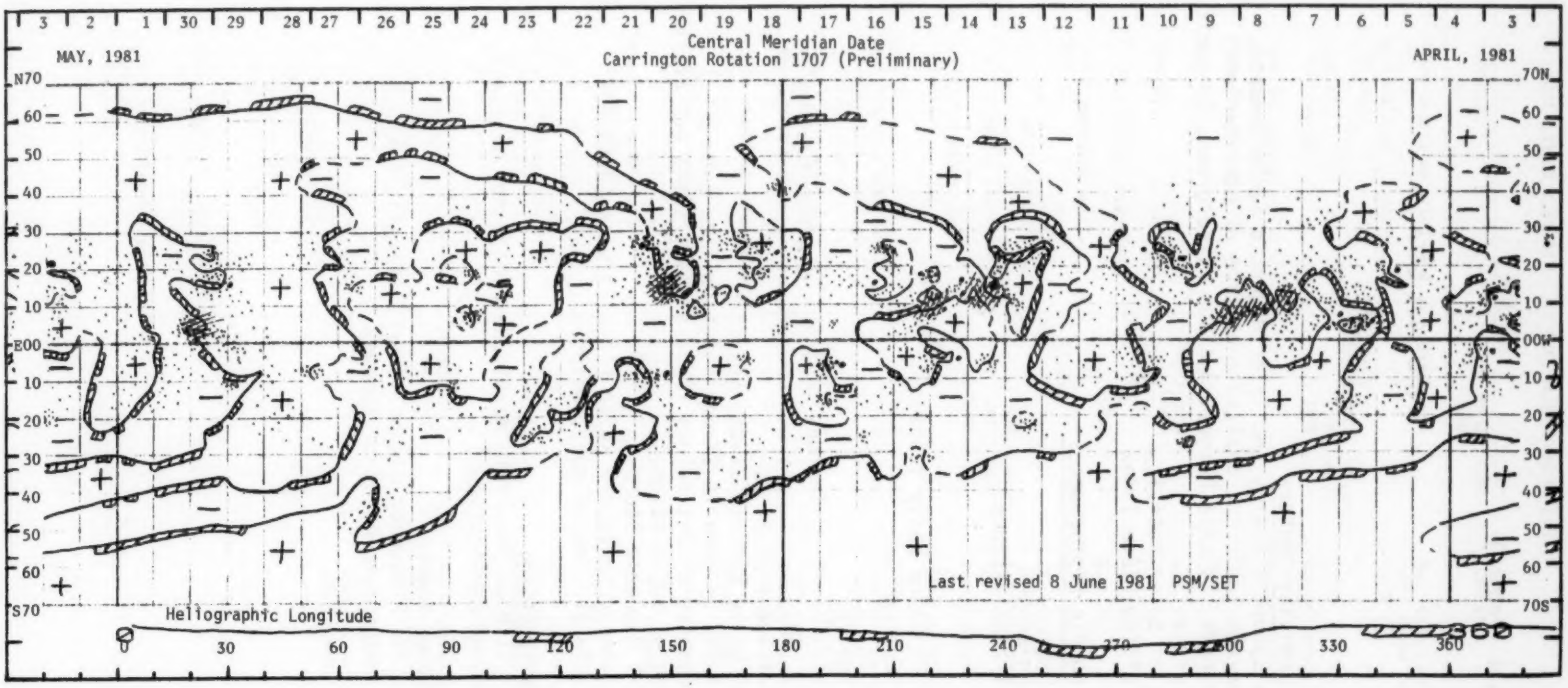
Hα SYNOPTIC CHART

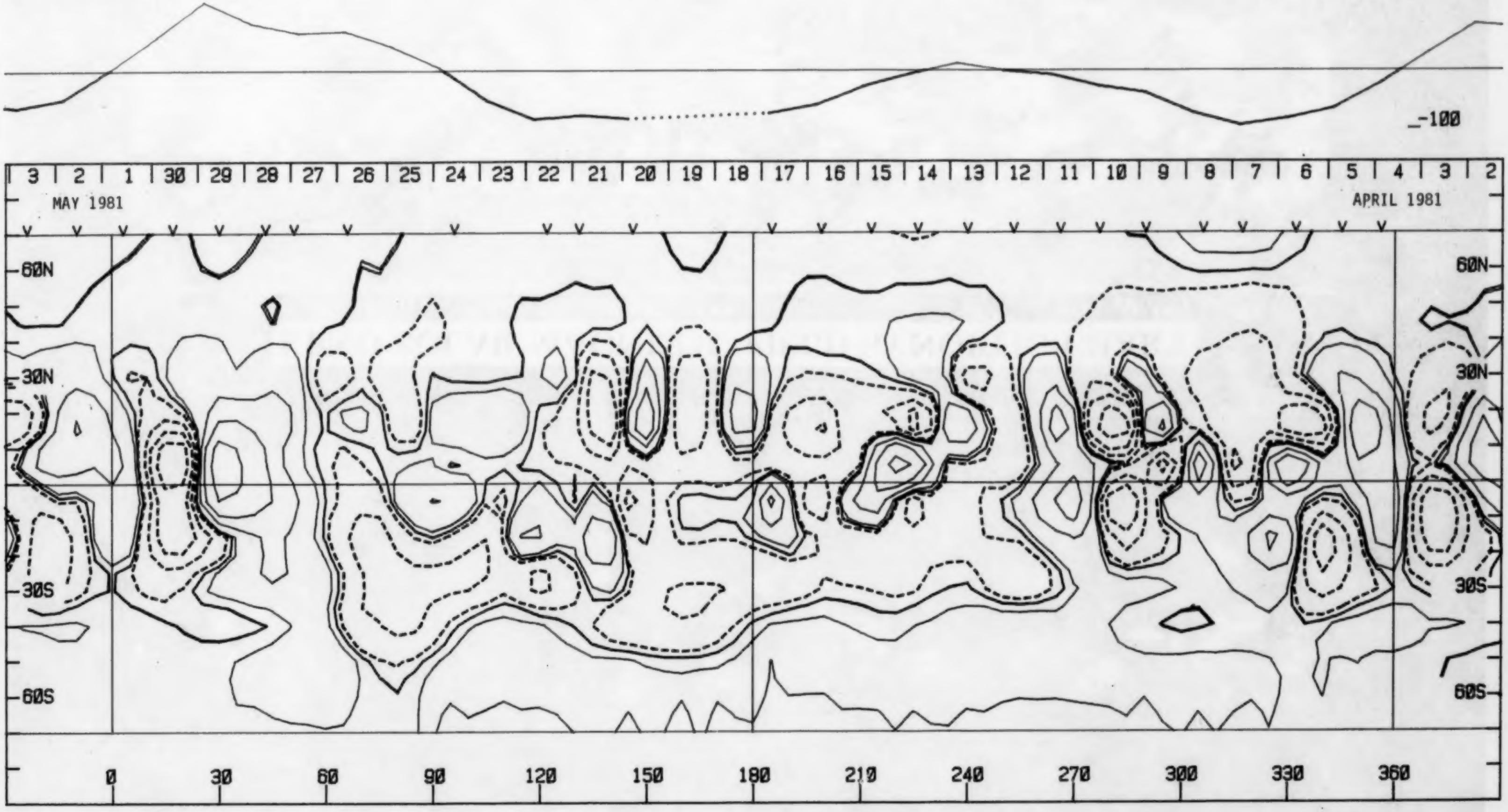
CARRINGTON ROTATION 1707 (PRELIMINARY)

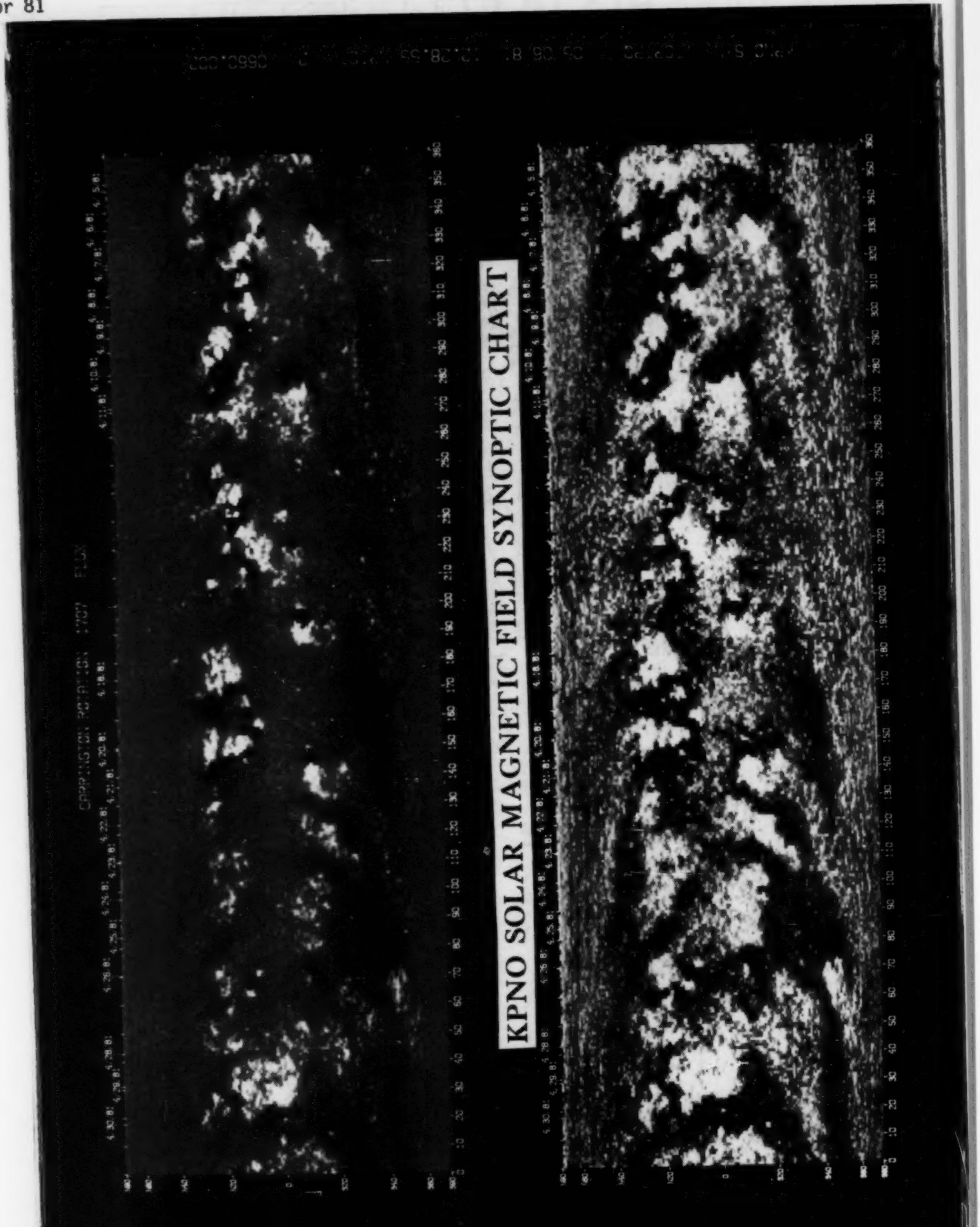


SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1707

Stanford Solar Observatory

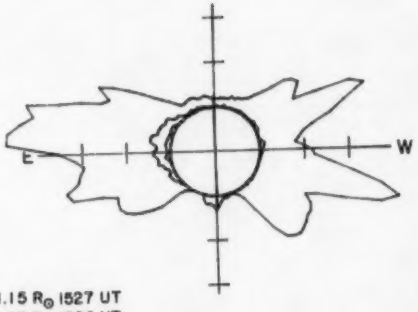
0,±100,200,500... μT




KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

APRIL 1, 1981 (P=-26.20, B_o=-6.53, L_o=48.90)

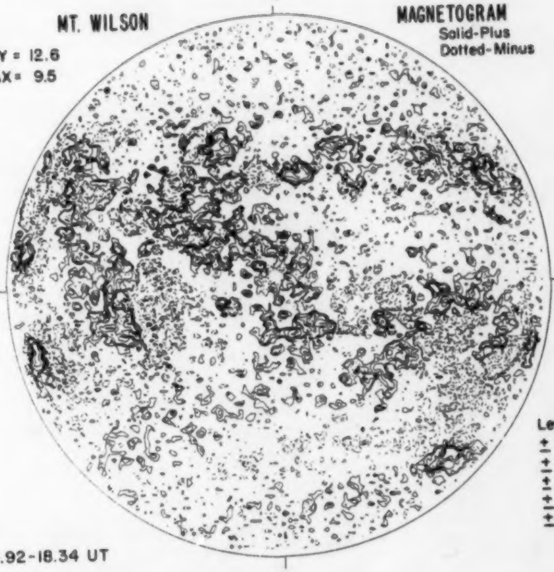
SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1527 UT
1.35 $R_\odot$ 1506 UT
1.55 $R_\odot$ 1516 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



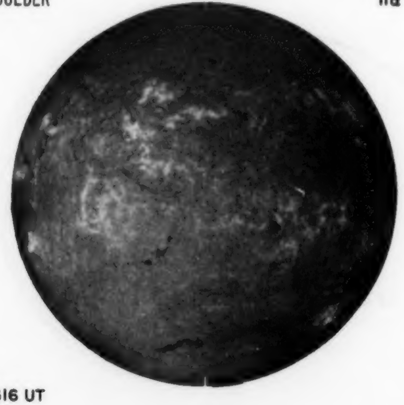
16.92-18.34 UT

1440 UT

01

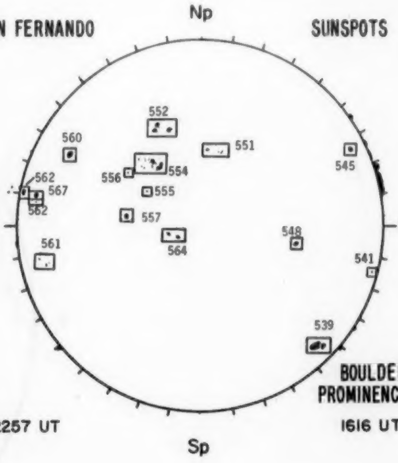
BOULDER

Hα



1616 UT

SAN FERNANDO — SUNSPOTS

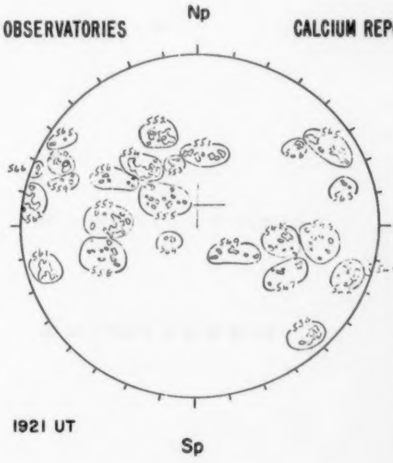


2257 UT

BOULDER PROMINENCES

1616 UT

HALE OBSERVATORIES — CALCIUM REPORT



1921 UT

GOOD	JA
39-	0900-4.0
41-	0300-3.0
42-	0900-3.0
43-	0500-3.0
45-	1300-3.0
46-	0300-3.0
47-	0400-3.0
48-	0700-3.0
49-	0500-3.0
51-	0800-3.5
52-	1100-3.5
53-	0300-3.0
54-	1500-3.5
55-	0700-3.0
56-	0300-3.0
57-	1500-3.0
58-	0700-3.0
59-	0200-2.5
60-	0600-3.0
61-	1400-3.5
62-	1200-3.5
63-	0200-3.0
64-	0200-3.0
66-	0200-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA APRIL 1, 18, 19, 23, 25, 26

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

APRIL 2, 1981 (P=-26.24, B_o=-6.48, L_o=35.71)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA APRIL 2,3,6,12,14,15,16,17,18, 21,22,23 W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E NO DATA APRIL 2,3,12,13,14,15,16,17,27 W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

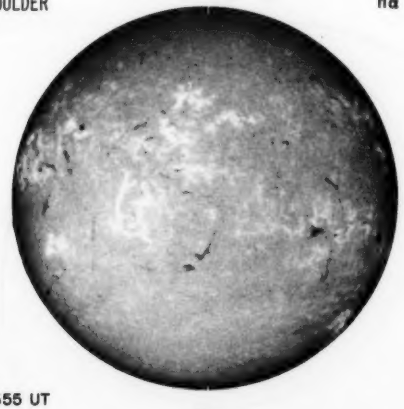
E NO DATA APRIL 2,18,19,20,26 W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

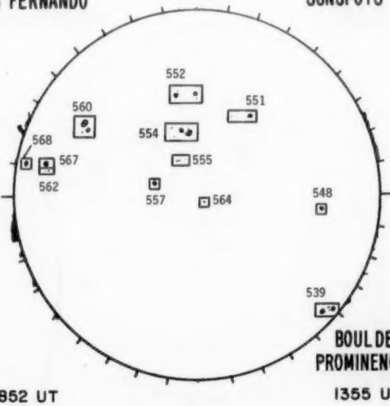
02

BOULDER Hα



1355 UT

SAN FERNANDO SUNSPOTS



1852 UT

BOULDER PROMINENCES

1355 UT

HALE OBSERVATORIES CALCIUM REPORT

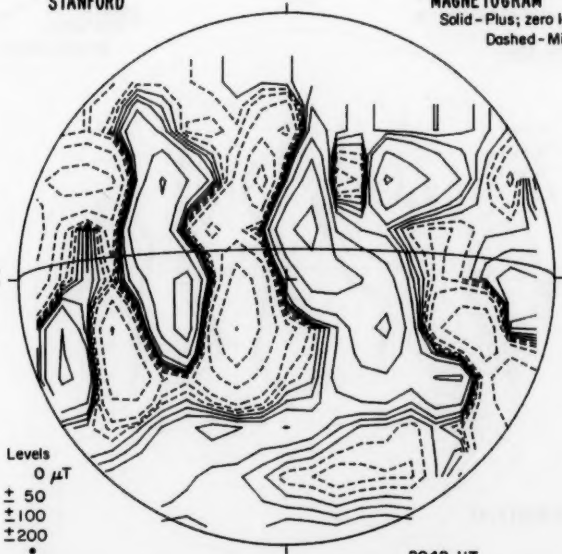
Np

E NO DATA APRIL 2, 3, 18, 19, 20, 26 W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200

2042 UT

APRIL 3, 1981 (P=-26.27, B_o=-6.42, L_o=22.52)

SACRAMENTO PEAK

CORONA
5303 Å

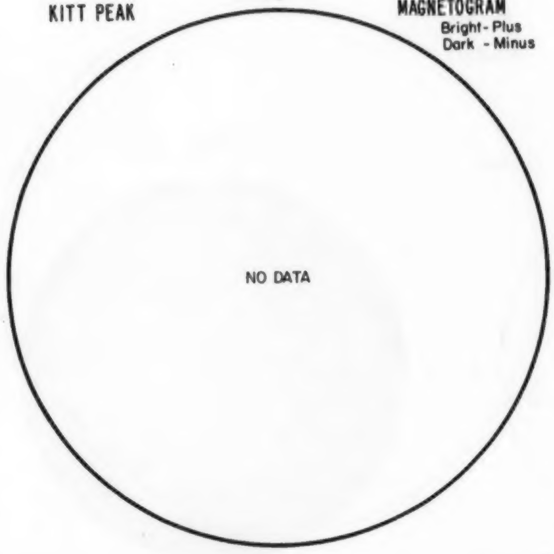
Np

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

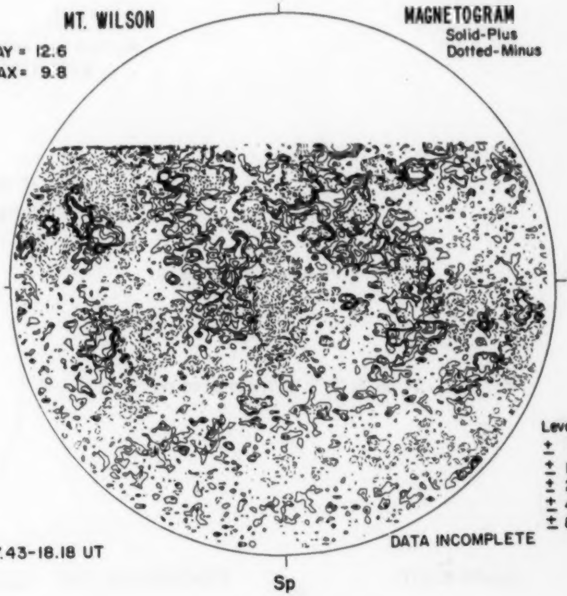
Sp

KITT PEAK



MT. WILSON

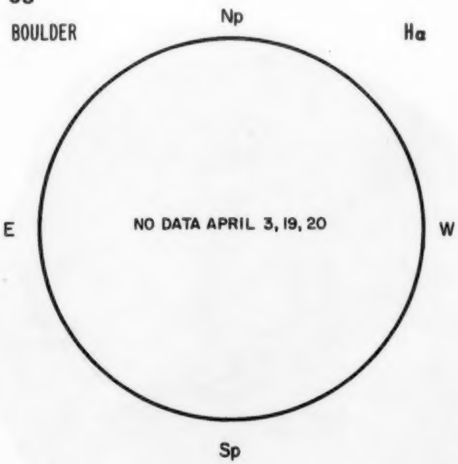
DELTAY = 12.6
DELTAX = 9.8



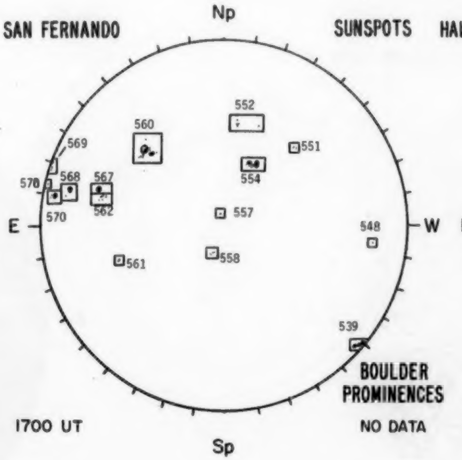
17.43-18.18 UT

03

BOULDER Hα



SAN FERNANDO SUNSPOTS



BOULDER
PROMINENCES
NO DATA

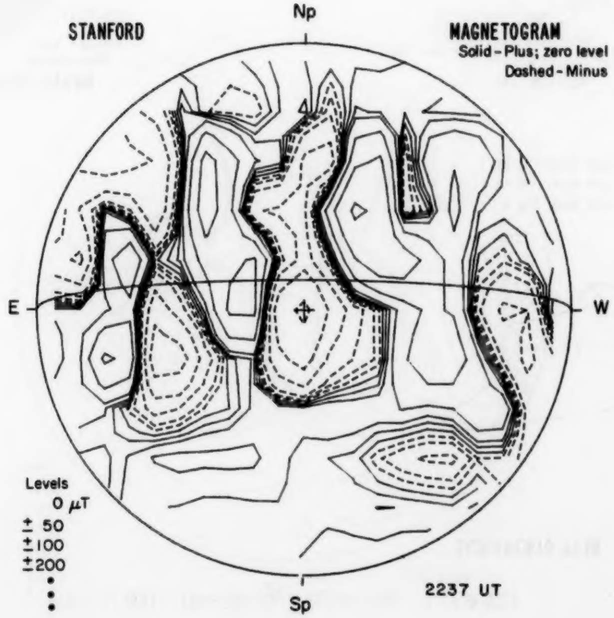
HALE OBSERVATORIES CALCIUM REPORT

Np

E NO DATA W

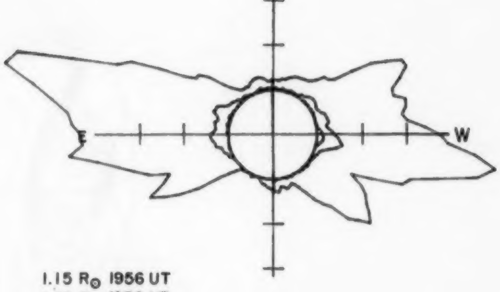
Sp

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



APRIL 4, 1981 (P=-26.29, B_o=-6.36, L_o=9.32)

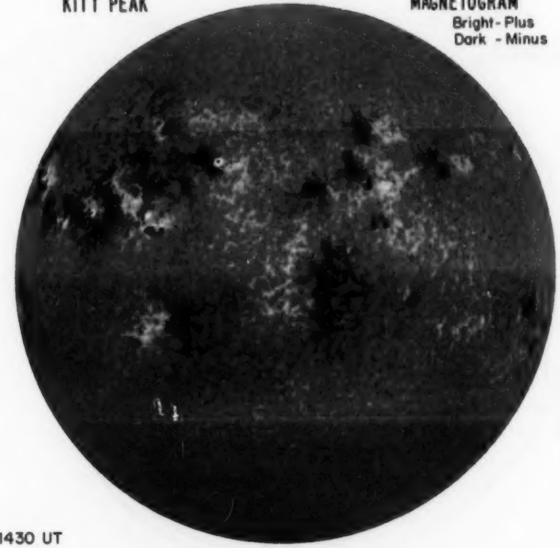
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1956 UT
1.35 $R_\odot$ 1936 UT
1.55 $R_\odot$ 1946 UT

Sp

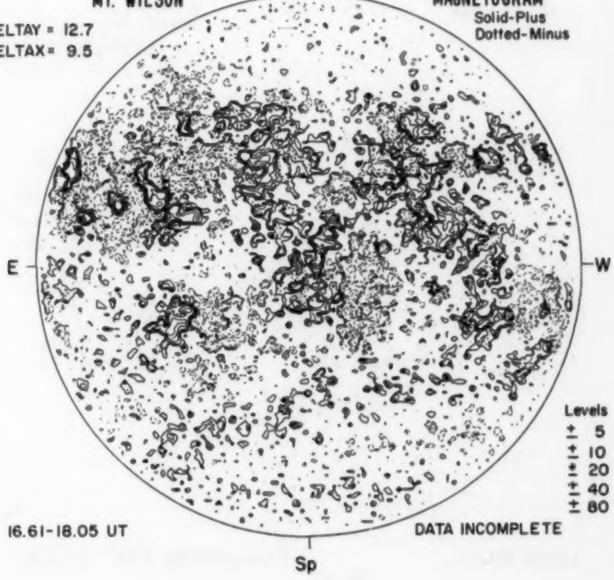
KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



1430 UT Sp

Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

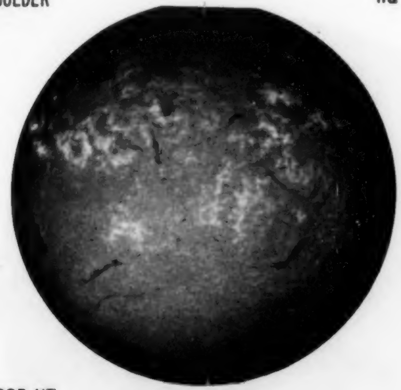
DELTAY = 12.7
DELTAX = 9.5



16.61-18.05 UT DATA INCOMPLETE
Sp

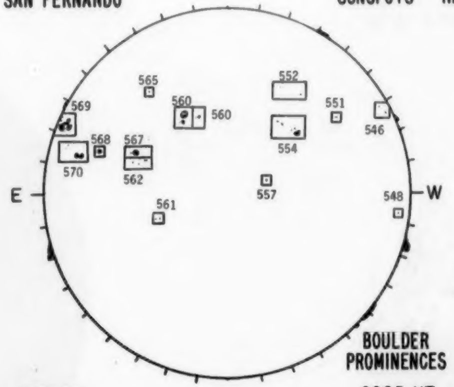
04

BOULDER — Hα



2025 UT

SAN FERNANDO — SUNSPOTS

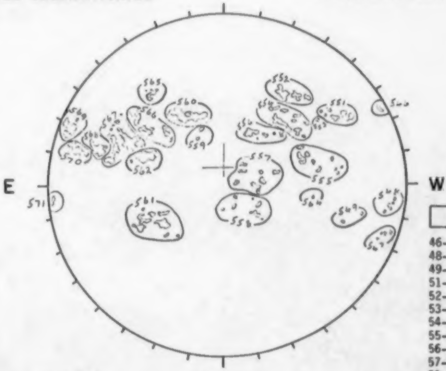


1852 UT

BOULDER PROMINENCES

2025 UT

HALE OBSERVATORIES — CALCIUM REPORT



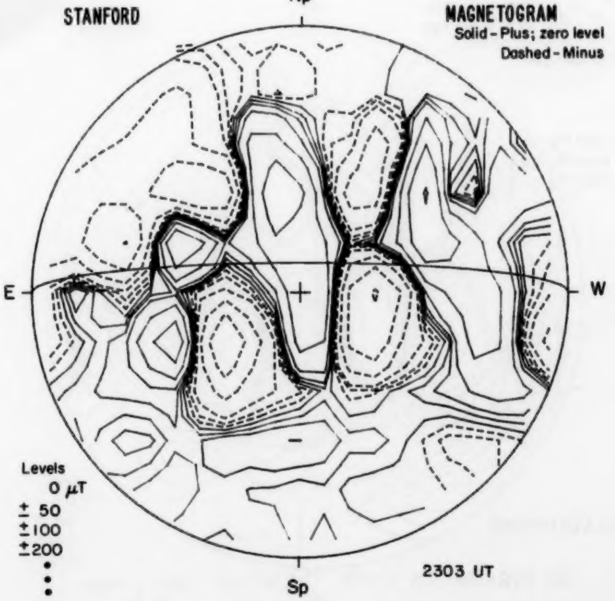
1915 UT

GOOD	JA

46- 0300-3.0
48- 0400-2.5
49- 0200-2.5
51- 1000-3.0
52- 1100-3.5
53- 0100-3.0
54- 1200-3.0
55- 1000-3.0
56- 0600-3.0
57- 1000-3.0
58- 0500-3.0
59- 0200-3.0
60- 1400-3.0
61- 1500-3.5
62- 1100-3.0
64- 0100-3.0
65- 0300-3.0
66- 1000-3.0
67- 2100-3.5
68- 0900-3.0
69- 1000-4.0
70- 0700-3.5
71- 0200-3.0

STANFORD — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



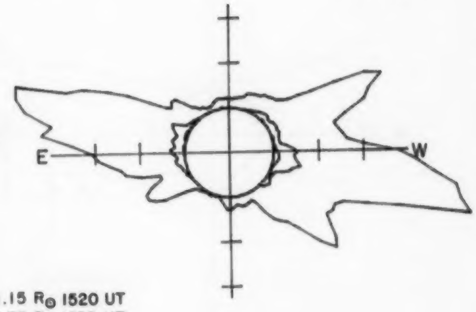
Levels
0 μT
± 50
±100
±200
•
•
•

2303 UT

APRIL 5, 1981 (P=-26.31, B_o=-6.30, L_o=356.13)

SACRAMENTO PEAK

CORONA
5303 Å

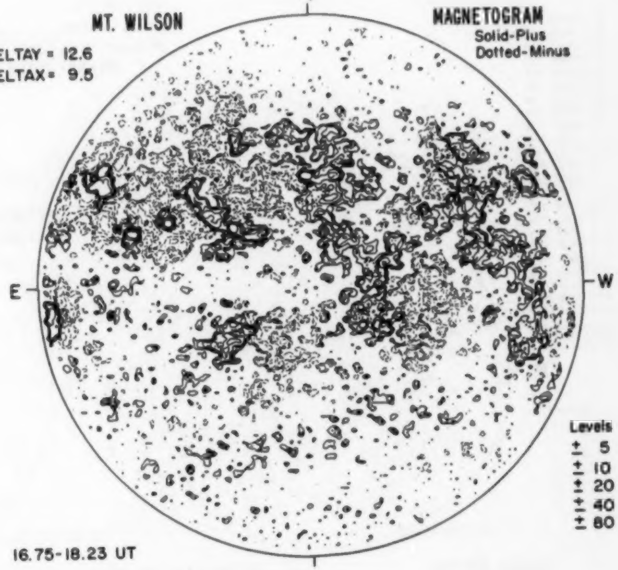


1.15 $R_\odot$ 1520 UT
1.35 $R_\odot$ 1528 UT
1.55 $R_\odot$ 1541 UT

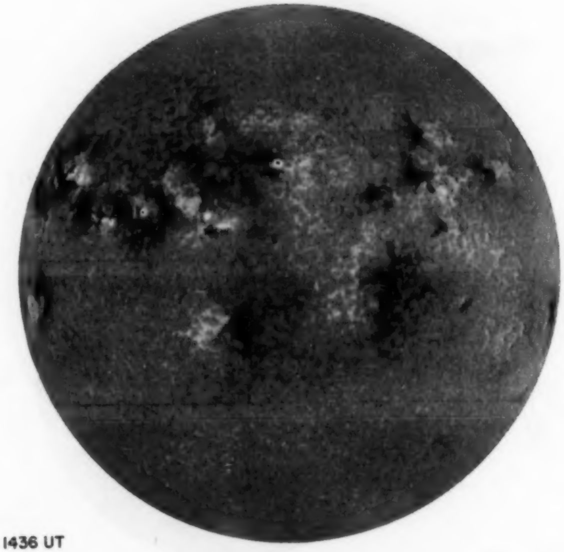
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



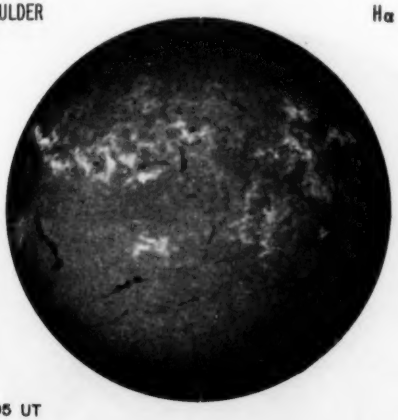
16.75-18.23 UT



1436 UT

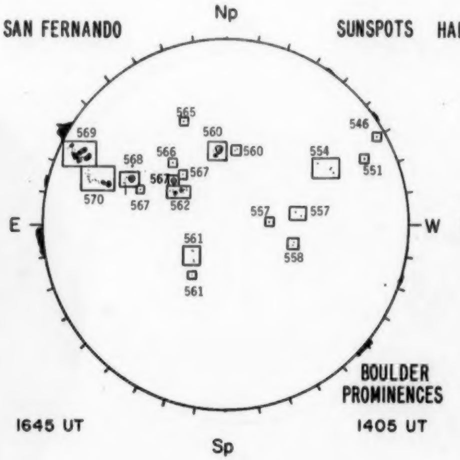
05

BOULDER



1405 UT

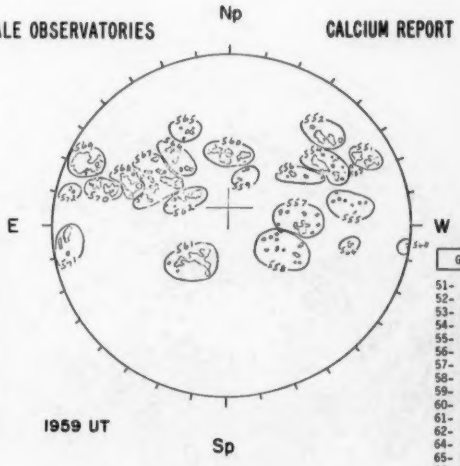
Hα SAN FERNANDO SUNSPOTS



1645 UT

1405 UT

HALE OBSERVATORIES CALCIUM REPORT

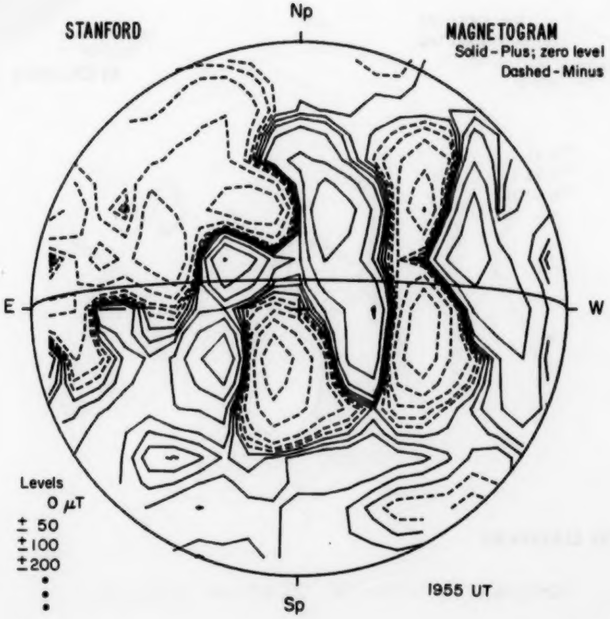


1959 UT

GOOD	JA
51-	1200-3.0
52-	1100-3.0
53-	0100-2.5
54-	1200-3.0
55-	0400-2.5
56-	0300-3.0
57-	0900-3.0
58-	0600-3.0
59-	0200-2.5
60-	1400-3.5
61-	1500-3.0
62-	0800-3.0
64-	0100-3.0
65-	0300-2.5
66-	0600-3.0
67-	1800-3.5
68-	1100-3.5
69-	3300-4.0
70-	1100-3.0
71-	1000-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1955 UT

APRIL 6, 1981 (P=-26.32, B_o=-6.24, L_o=342.93)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

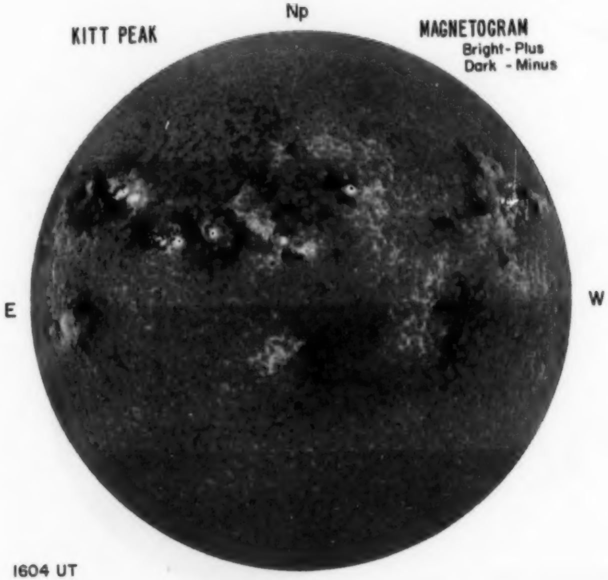
W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

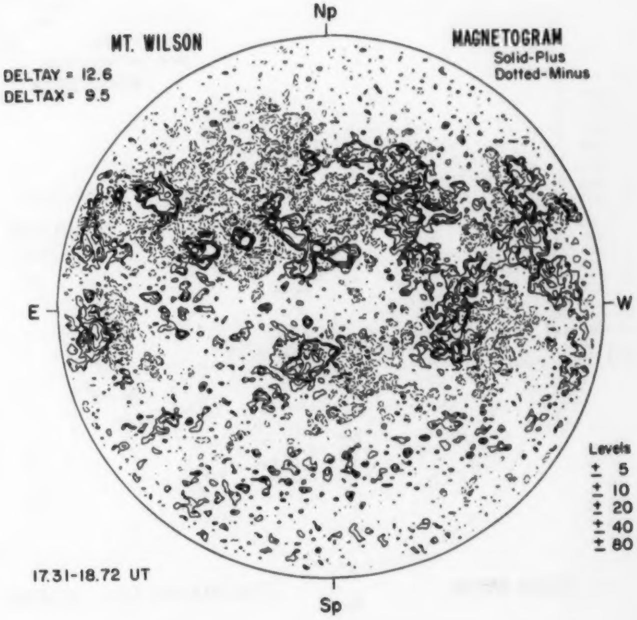


1604 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

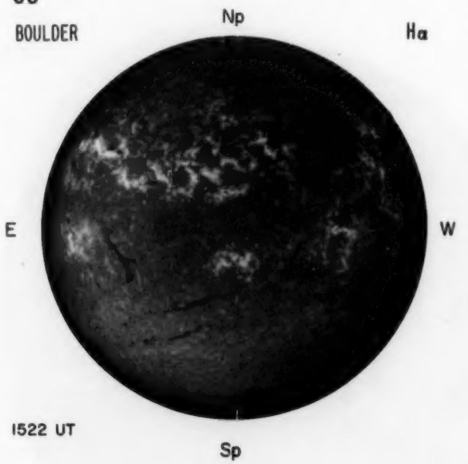
DELTAY = 12.6
DELTAX = 9.5

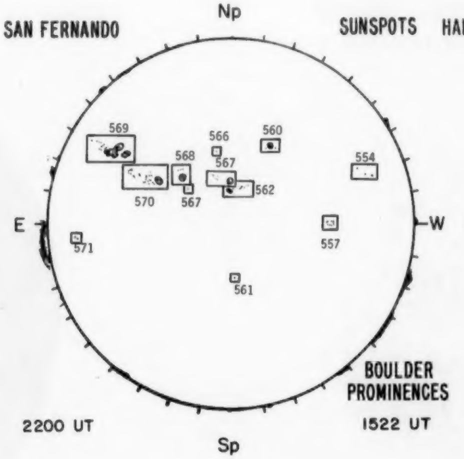


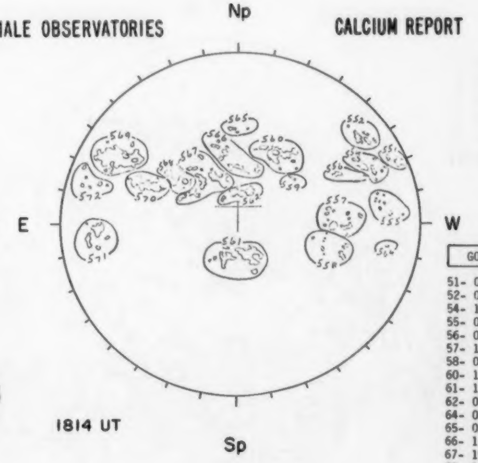
Levels
± 5
± 10
± 20
± 40
± 80

17.31-18.72 UT

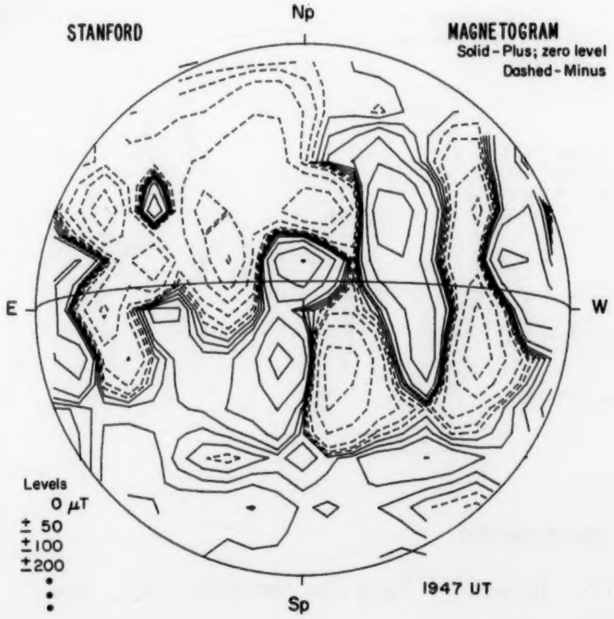
06





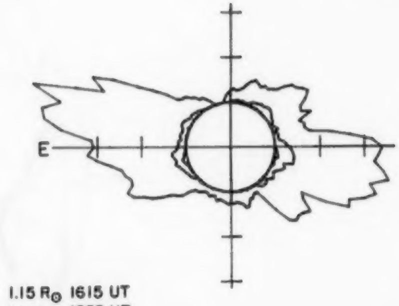


GOOD	JA
51-	0900-2.5
52-	0800-3.0
54-	1000-3.0
55-	0400-2.5
56-	0200-3.0
57-	1000-3.0
58-	0500-3.0
60-	1300-3.5
61-	1700-3.5
62-	0700-3.0
64-	0100-3.0
65-	0200-2.5
66-	1100-3.0
67-	1900-3.5
68-	1000-3.0
69-	4700-3.5
70-	1400-3.5
71-	1200-3.0



APRIL 7, 1981 (P=-26.32, B_o=-6.17, L_o=329.73)

SACRAMENTO PEAK | Np | CORONA 5303 Å



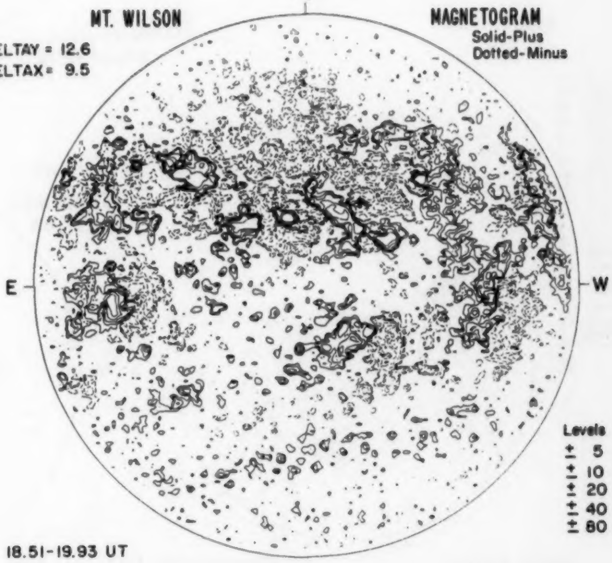
1.15 $R_\odot$ 1615 UT
1.35 $R_\odot$ 1555 UT
1.55 $R_\odot$ 1604 UT

Sp

Np

MT. WILSON | MAGNETOGRAM Solid-Plus Dotted-Minus

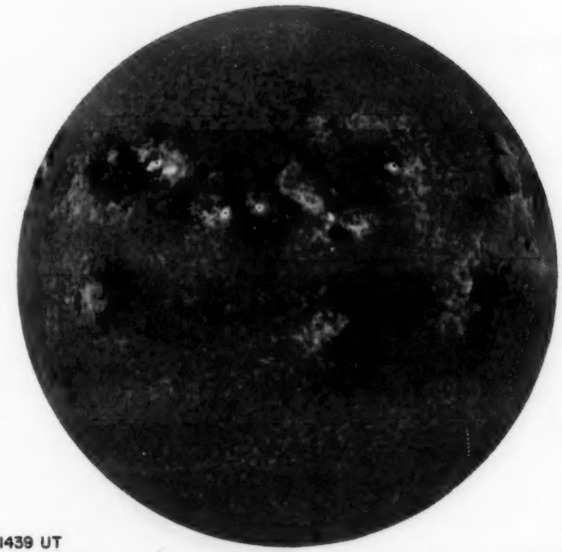
DELTAY = 12.6
DELTAX = 9.5



Levels
± 5
± 10
± 20
± 40
± 80

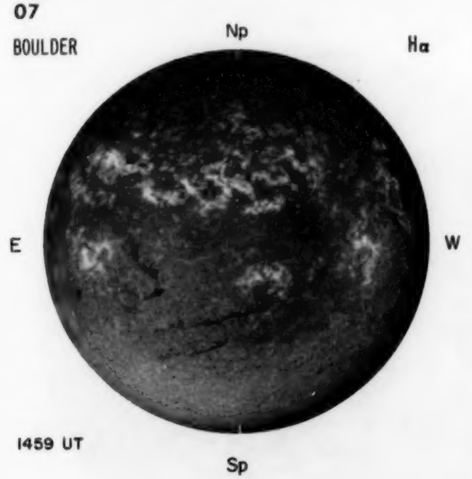
18.51-19.93 UT

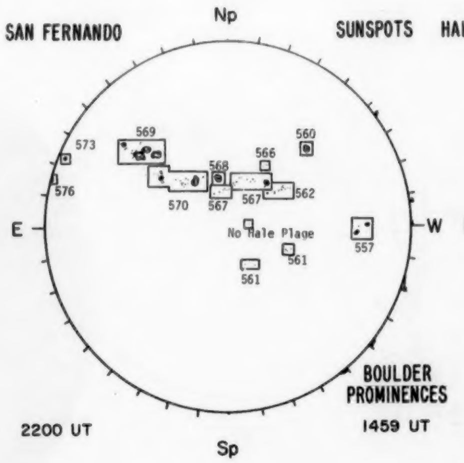
Sp

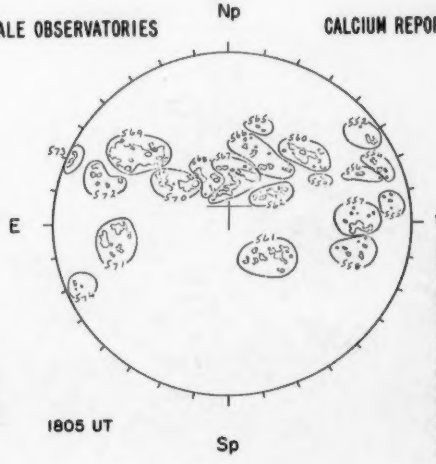


1439 UT

07

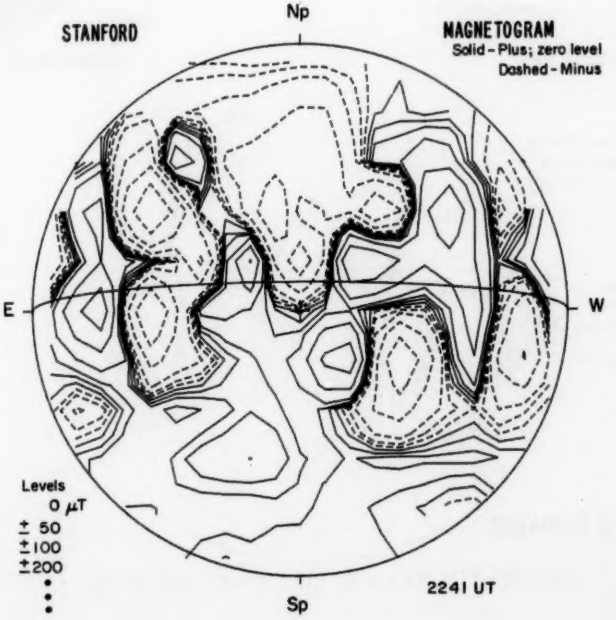






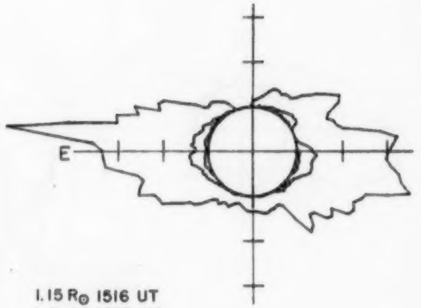
GOOD	JA

52- 0400-3.0
54- 0400-3.0
56- 0200-2.5
57- 1100-3.0
58- 0500-2.5
59- 0100-2.0
60- 1400-3.5
61- 1300-3.0
62- 1000-3.0
65- 0100-2.5
66- 1000-3.0
67- 1900-3.5
68- 0600-3.5
69- 5500-3.5
70- 1200-3.5
71- 1500-3.5
72- 0700-2.5
73- 0500-3.5



APRIL 8, 1981 (P=-26.32, B_o=-6.10, L_o=316.54)

SACRAMENTO PEAK Np CORONA 5303 Å

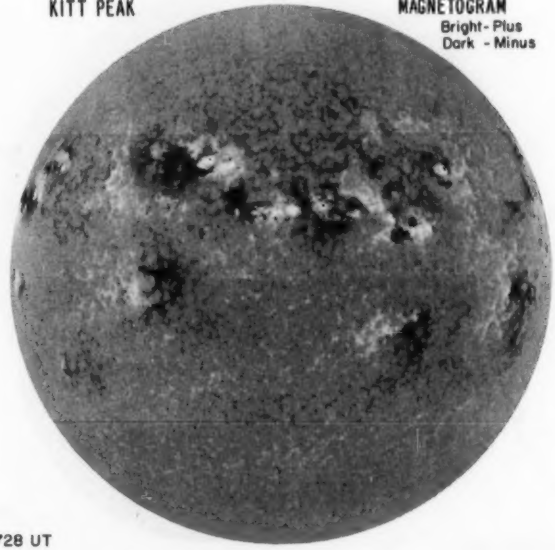


1.15 $R_\odot$ 1516 UT
1.35 $R_\odot$ 1456 UT
1.55 $R_\odot$ 1505 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E



W

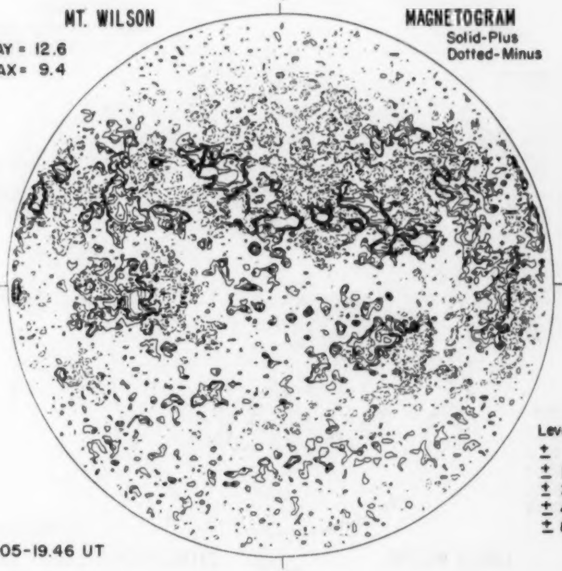
1728 UT Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

E



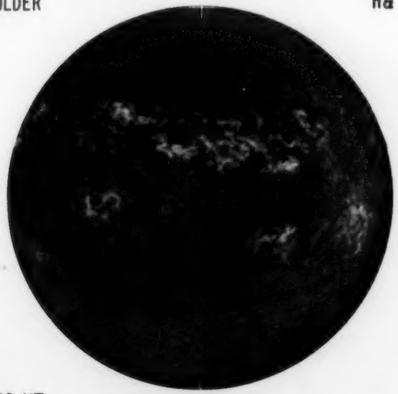
W

Levels
± 5
± 10
± 20
± 40
± 80

18.05-19.46 UT Sp

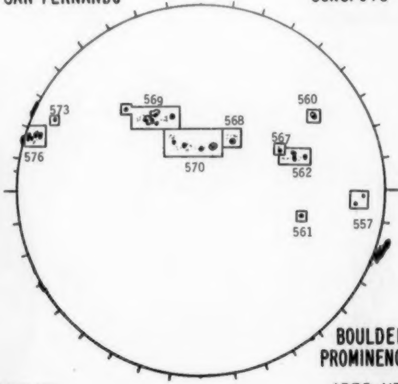
08

BOULDER Hα



1532 UT

SAN FERNANDO SUNSPOTS



2110 UT

BOULDER PROMINENCES

1532 UT

HALE OBSERVATORIES CALCIUM REPORT

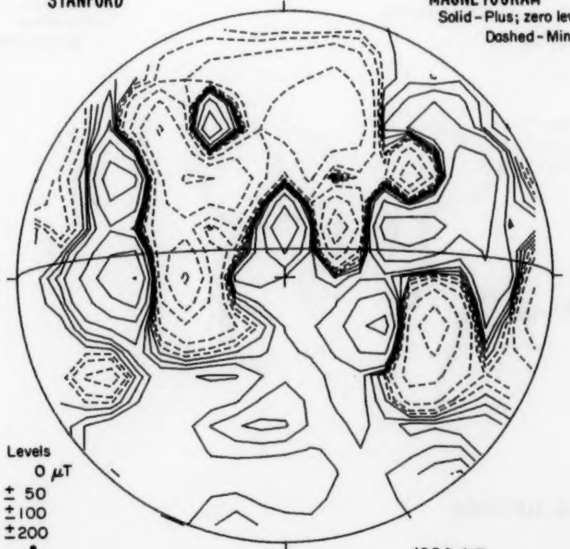
1913 UT

GOOD	JA
52-	0500-2.5
54-	0300-2.5
57-	0900-3.0
58-	0400-2.5
60-	1100-3.0
61-	1400-3.0
62-	1600-3.5
66-	1000-3.5
67-	2000-3.0
68-	1300-3.5
69-	6000-3.0
70-	1900-3.5
71-	1600-3.0
72-	0600-3.0
73-	0600-3.0
75-	0300-3.0
76-	0900-3.0
78-	0200-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



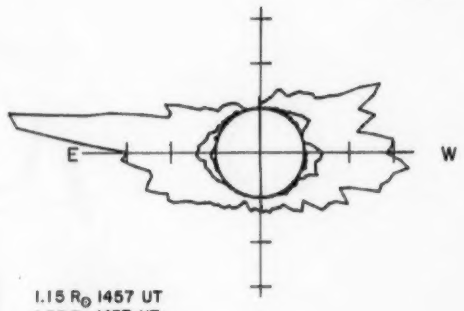
Levels
0 μT
± 50
± 100
± 200

1926 UT

APRIL 9, 1981 ($P = -26.31$, $B_o = -6.04$, $L_o = 303.34$)

SACRAMENTO PEAK

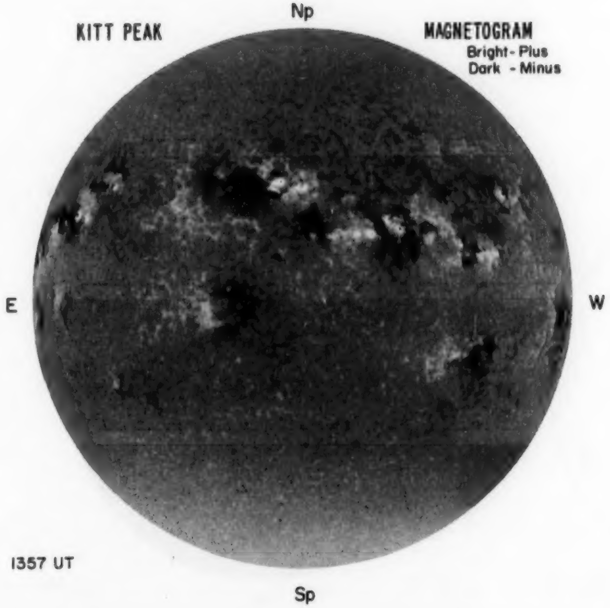
CORONA 5303 Å



1.15 $R_\odot$ 1457 UT
1.35 $R_\odot$ 1437 UT
1.55 $R_\odot$ 1446 UT

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus

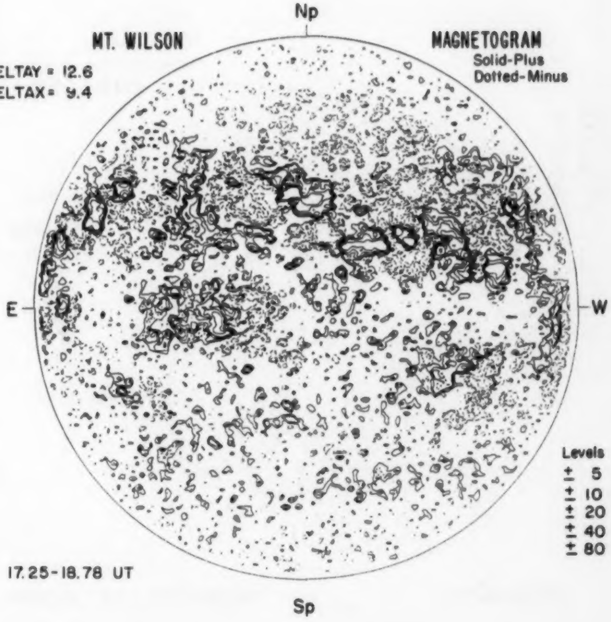


1357 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

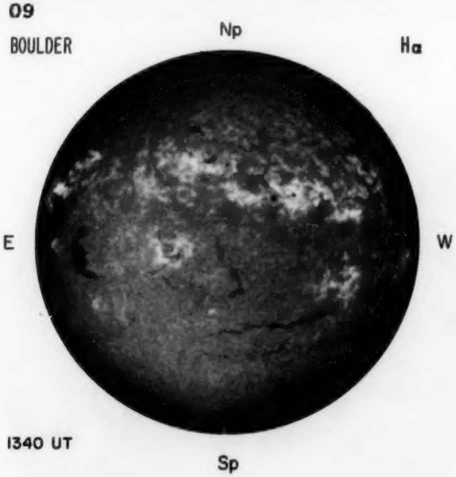
DELTAY = 12.6
DELTAX = 9.4



17.25-18.78 UT

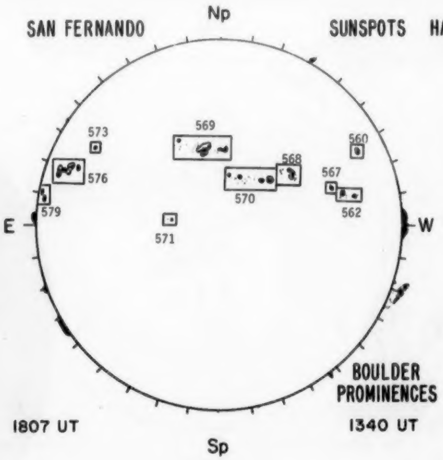
09

BOULDER Hα



1340 UT

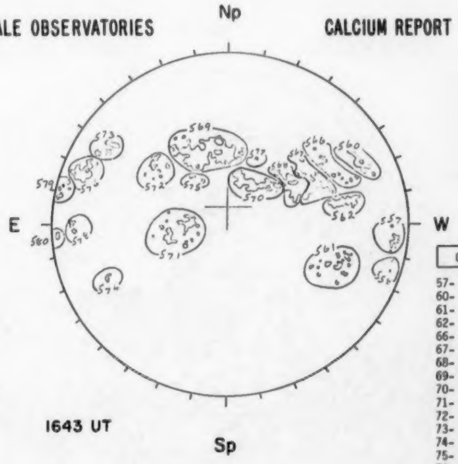
SAN FERNANDO SUNSPOTS



1807 UT

BOULDER PROMINENCES 1340 UT

HALE OBSERVATORIES CALCIUM REPORT

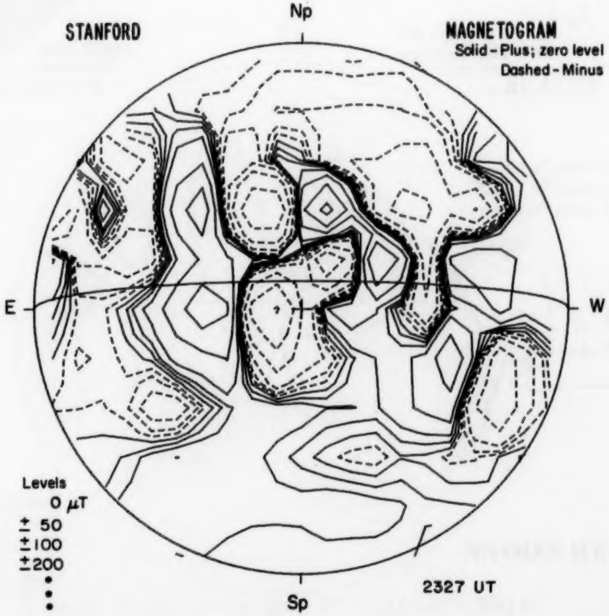


1643 UT

GOOD	JA
57-	0600-3.0
60-	1000-3.0
61-	1000-3.0
62-	1200-3.5
66-	0600-3.0
67-	1800-3.0
68-	2000-3.5
69-	6400-3.0
70-	1800-3.5
71-	1600-3.0
72-	0700-2.5
73-	0800-3.5
74-	0200-3.0
75-	0200-3.0
76-	2200-3.5
77-	0100-2.5
78-	0300-3.0
79-	0400-3.0
80-	0300-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

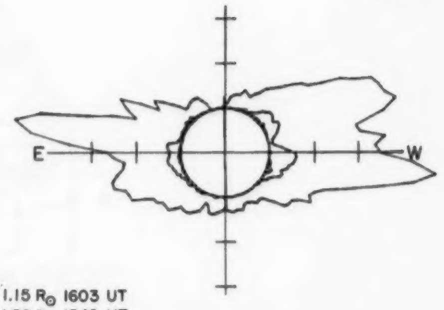


Levels
0 μT
± 50
±100
±200

2327 UT

APRIL 10, 1981 (P=-26.29, B_o=-5.97, L_o=290.14)

SACRAMENTO PEAK Np CORONA 5303 Å

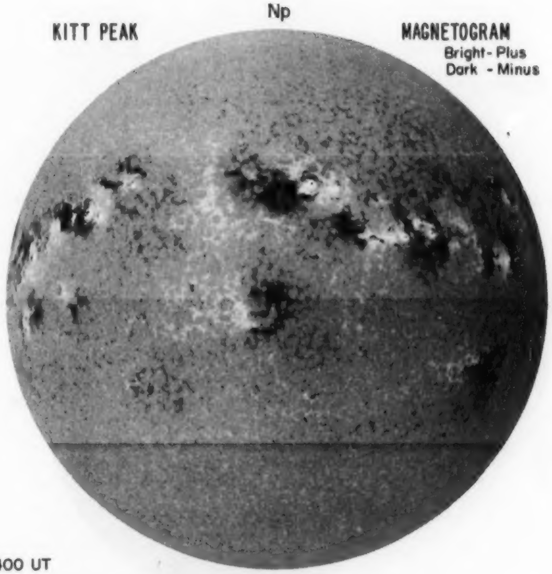


1.15 $R_\odot$ 1603 UT
1.35 $R_\odot$ 1542 UT
1.55 $R_\odot$ 1551 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E



W

1400 UT

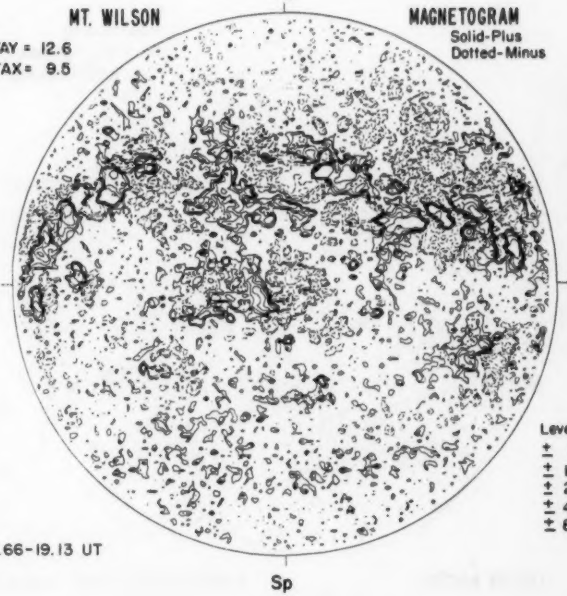
Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E



W

Levels
± 5
± 10
± 20
± 40
± 80

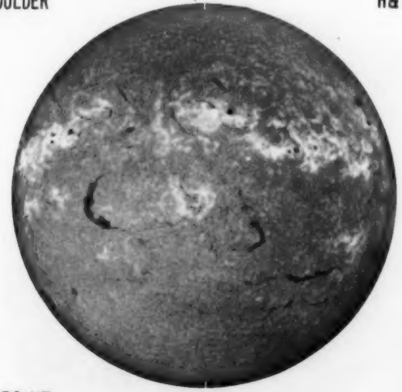
17.66-19.13 UT

Sp

10

BOULDER Hα

Np

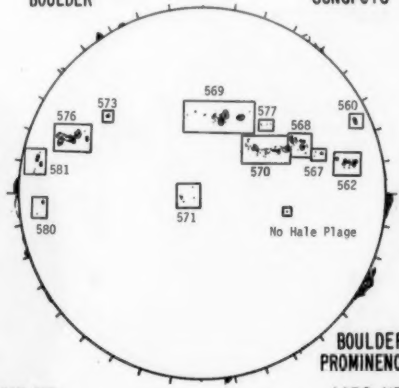
E  W

Sp

1438 UT

BOULDER SUNSPOTS

Np

E  W

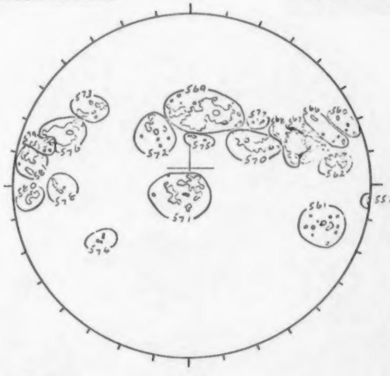
Sp

1415 UT

BOULDER PROMINENCES 1438 UT

HALE OBSERVATORIES CALCIUM REPORT

Np

E  W

Sp

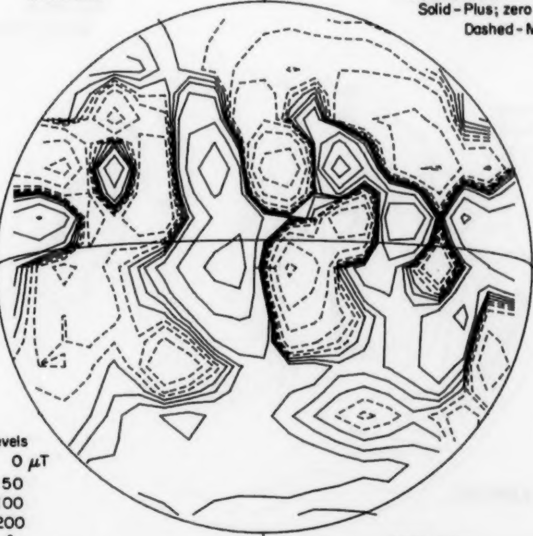
1643 UT

GOOD	JA
57- 0200-2.5	
60- 0300-3.0	
61- 0800-3.0	
62- 1100-3.5	
66- 0400-2.5	
67- 1200-3.0	
68- 3000-3.5	
69- 6000-3.5	
70- 1800-3.5	
71- 1800-3.0	
72- 0700-3.0	
73- 0900-3.0	
74- 0200-3.0	
75- 0200-3.0	
76- 3400-3.5	
77- 0200-3.0	
78- 0400-3.0	
79- 0700-3.0	
80- 0500-3.0	
81- 1400-3.5	

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E  W

Sp

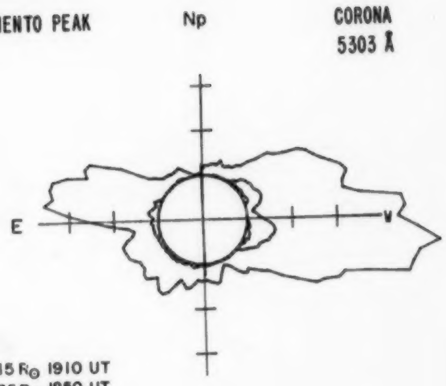
Levels
0 μT
± 50
± 100
± 200

2240 UT

APRIL 11, 1981 (P=-26.26, B_o=-5.90, L_o=276.94)

SACRAMENTO PEAK

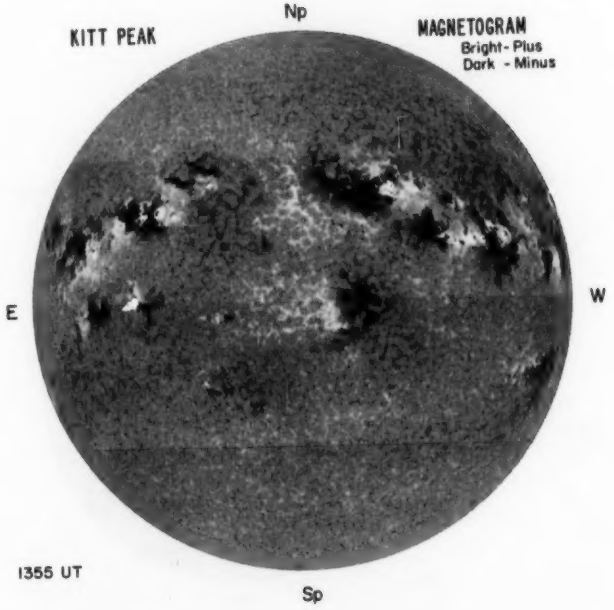
CORONA
5303 Å



$1.15 R_\odot$ 1910 UT
$1.35 R_\odot$ 1850 UT
$1.55 R_\odot$ 1900 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

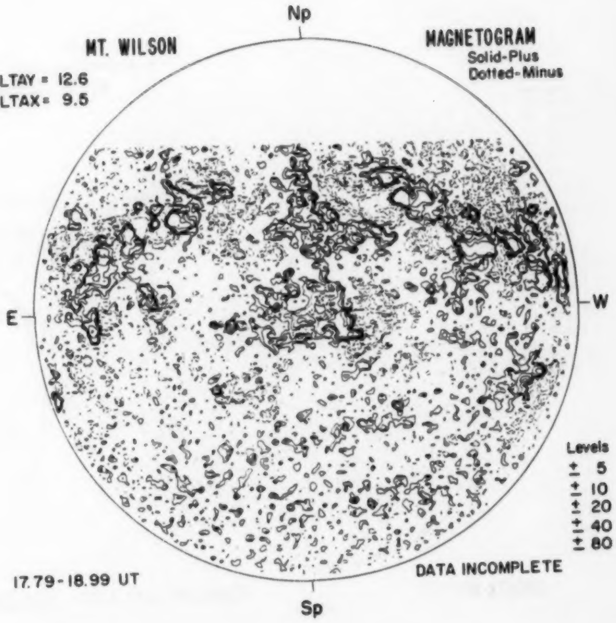


1355 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

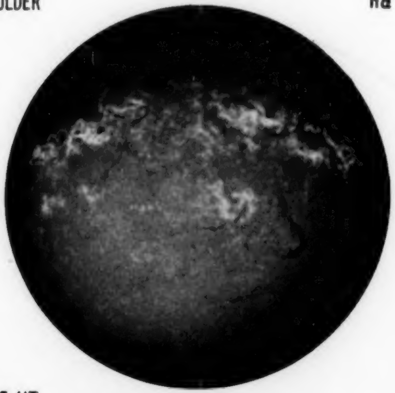


DATA INCOMPLETE

17.79-18.99 UT

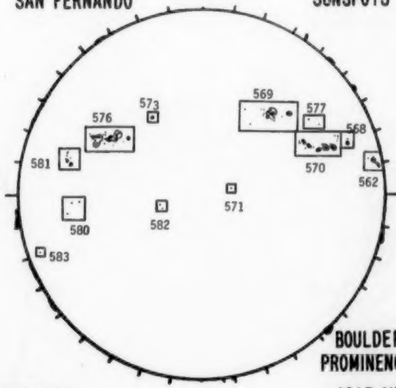
11

BOULDER Hα



1615 UT

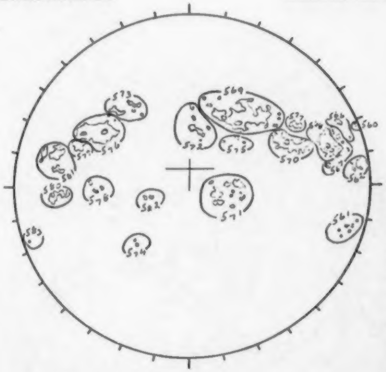
SAN FERNANDO SUNSPOTS



2350 UT

BOULDER PROMINENCES 1615 UT

HALE OBSERVATORIES CALCIUM REPORT

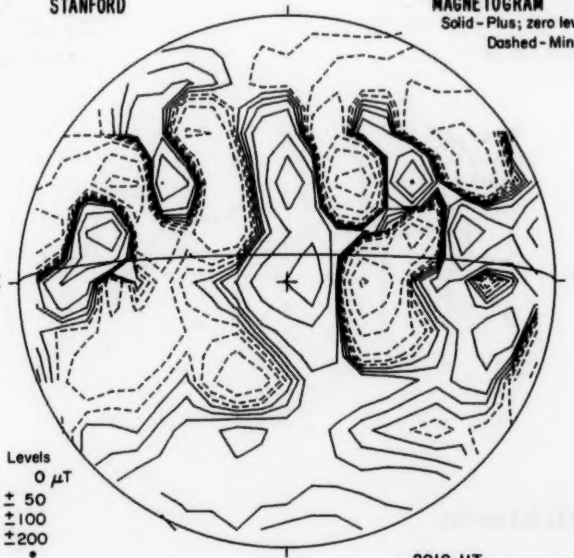


1855 UT

GOOD	JA

60- 0100-2.5
61- 0300-3.0
62- 0800-3.0
66- 0400-2.5
67- 0600-3.0
68- 2500-3.5
69- 4900-3.5
70- 2000-3.0
71- 1400-3.0
72- 0600-3.0
73- 0600-3.0
74- 0100-3.0
75- 0200-3.0
76- 4000-4.0
77- 0300-3.0
78- 0300-3.0
79- 0700-3.0
80- 0800-3.0
81- 1700-3.5
82- 0200-2.5

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

2012 UT

APRIL 12, 1981 (P=-26.23, B_o=-5.82, L_o=263.74)

SACRAMENTO PEAK — Np — CORONA 5303 Å

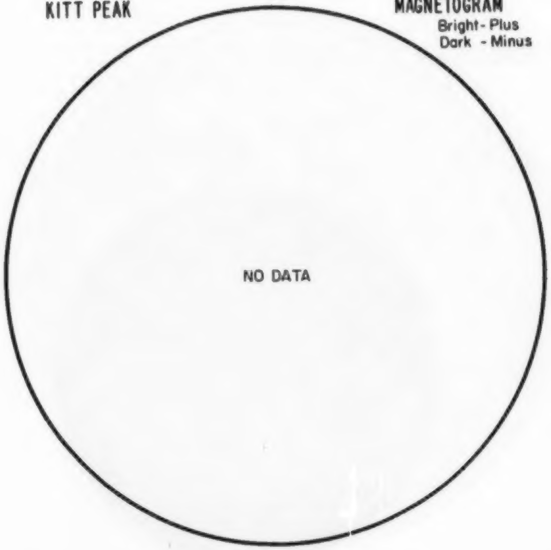
E — NO DATA — W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

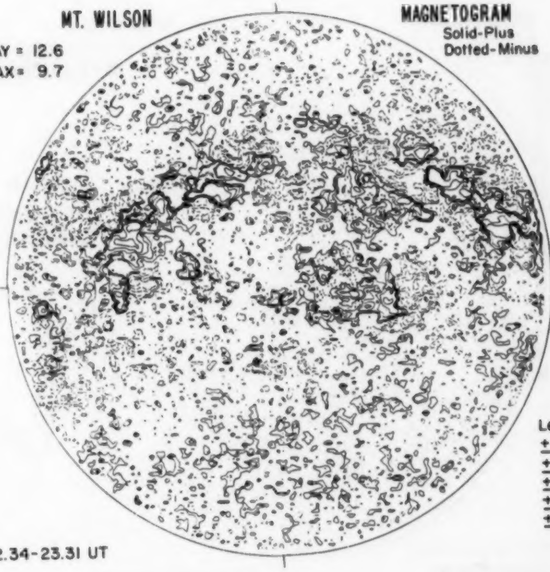
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY = 12.6
DELTAX = 9.7

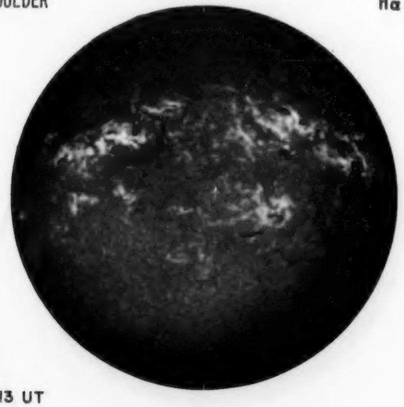
MAGNETOGRAM
Solid-Plus
Dotted-Minus



22.34-23.31 UT

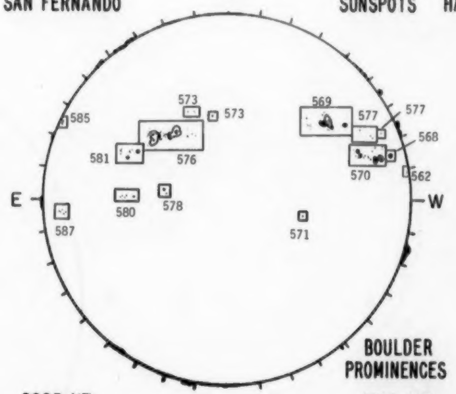
12

BOULDER Hα



1313 UT

SAN FERNANDO SUNSPOTS

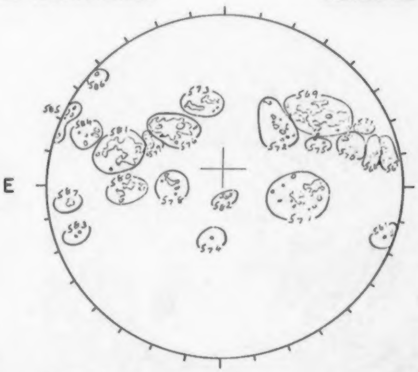


2025 UT

BOULDER PROMINENCES

1313 UT

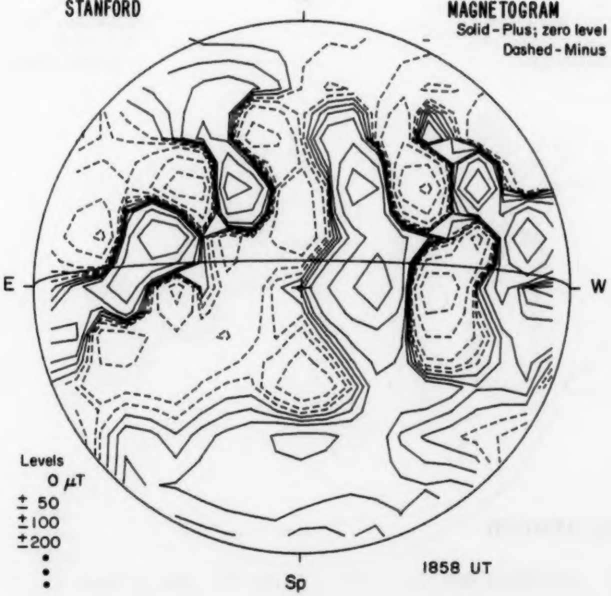
HALE OBSERVATORIES CALCIUM REPORT



2325 UT

GOOD	JA
61-	0200-2.5
67-	1000-3.0
68-	1100-3.5
69-	3800-3.5
70-	1300-3.5
71-	1400-3.0
72-	0600-3.0
73-	0700-3.5
75-	0100-2.5
76-	3300-4.0
77-	0100-3.0
78-	0400-3.0
79-	0400-4.0
80-	0900-3.5
81-	2900-3.5
82-	0200-2.5
83-	0200-2.5
84-	0500-3.0
85-	0600-3.0
86-	0300-3.0
87-	0300-3.5

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

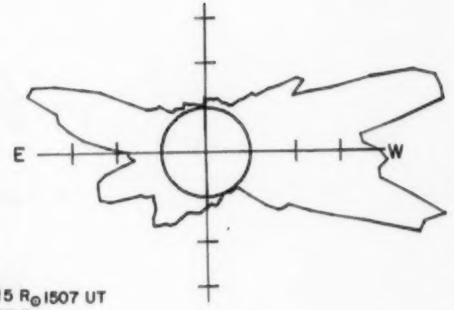


1858 UT

APRIL 13, 1981 (P=-26.19, B_o=-5.75, L_o=250.54)

SACRAMENTO PEAK

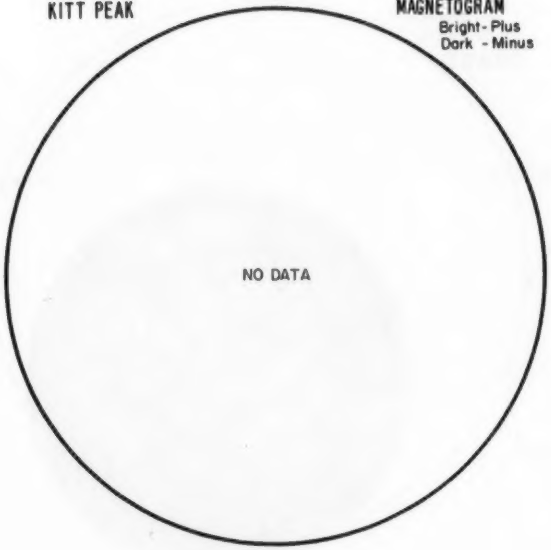
CORONA
5303 Å



1.15 $R_\odot$ 1507 UT
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

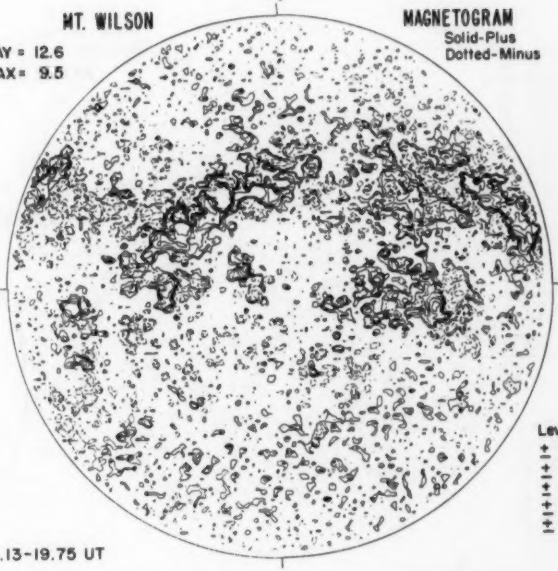
MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

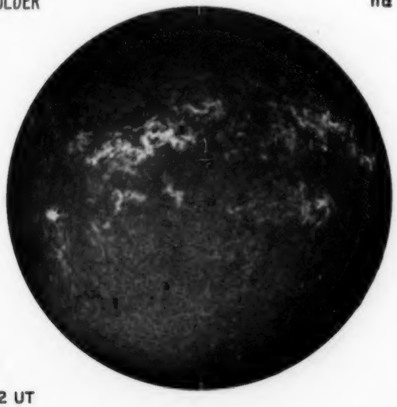
DELTAY = 12.6
DELTAX = 9.5



18.13-19.75 UT

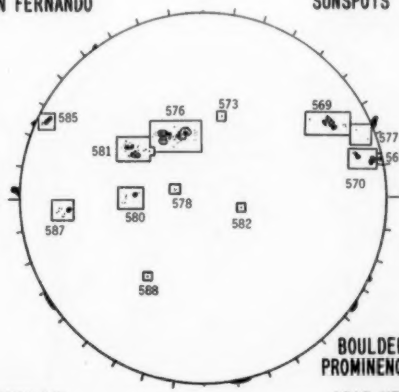
13

BOULDER Hα



1612 UT

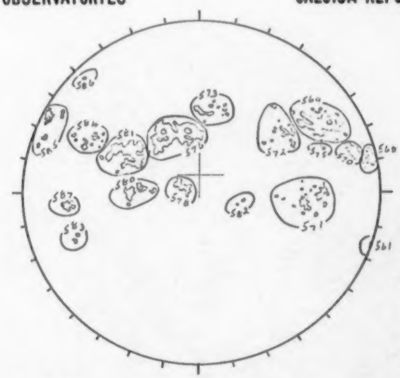
SAN FERNANDO SUNSPOTS



1830 UT

BOULDER PROMINENCES 1612 UT

HALE OBSERVATORIES CALCIUM REPORT

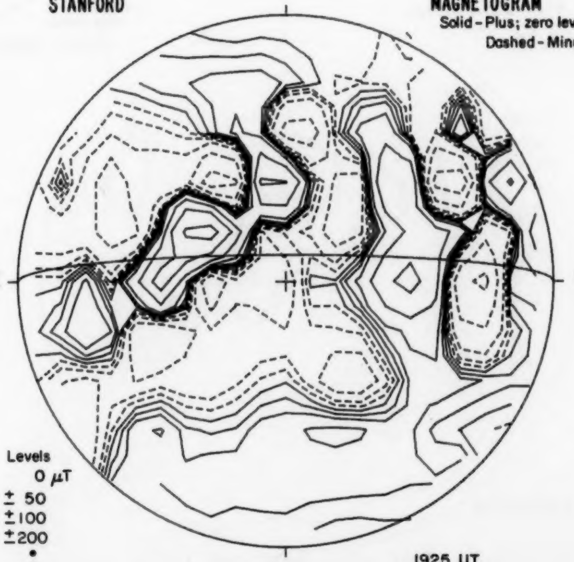


1441 UT

GOOD	JA

61- 0200-2.5
68- 1100-3.0
69- 3600-4.0
70- 1200-3.5
71- 1500-3.0
72- 0900-3.0
73- 0700-3.5
75- 0100-3.0
76- 4200-4.0
78- 0600-3.0
80- 0900-3.5
81- 2800-3.5
82- 0100-2.5
83- 0200-2.5
84- 0600-3.0
85- 1100-3.5
86- 0200-3.0
87- 0600-3.5

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

1925 UT

APRIL 14, 981 (P=-26.14, B_o=-5.67, L_o=237.33)

SACRAMENTO PEAK Np CORONA 5303 Å

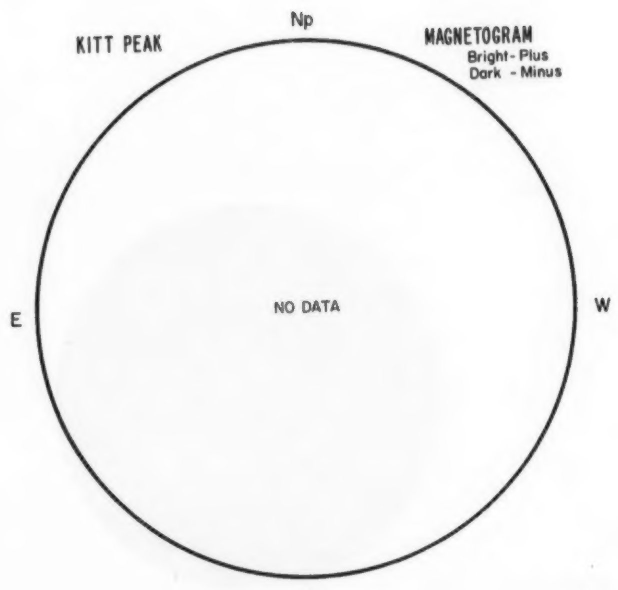
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

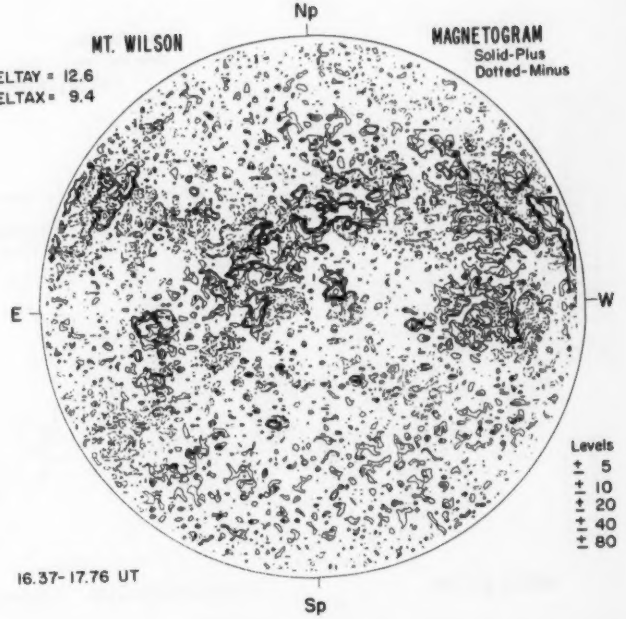
MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON

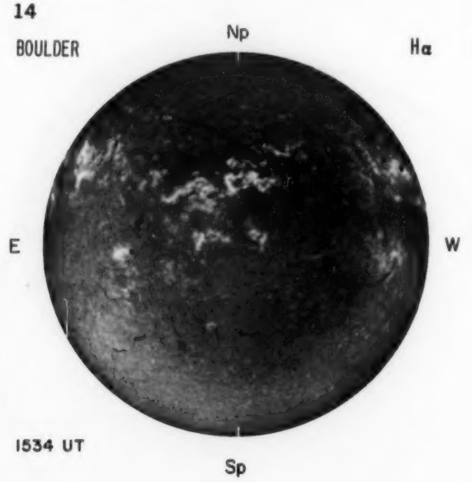
MAGNETOGRAM
Solid-Plus
Dotted-Minus

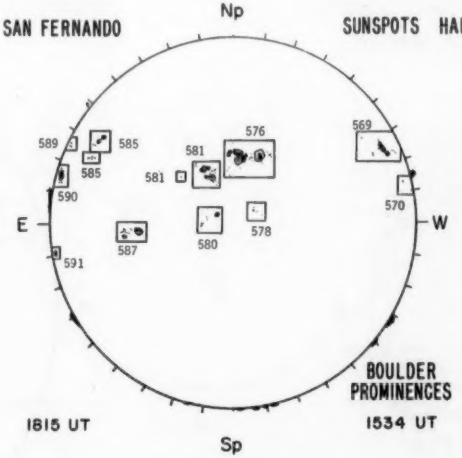
DELTAY = 12.6
DELTAX = 9.4

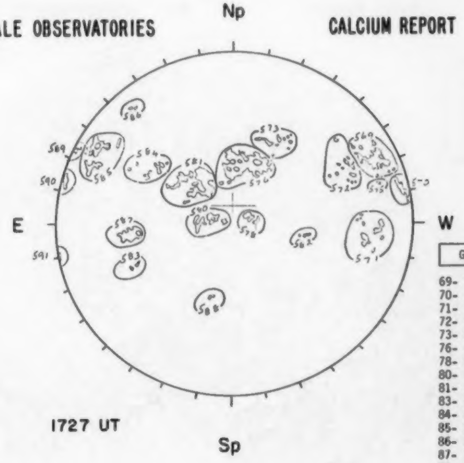


16.37-17.76 UT

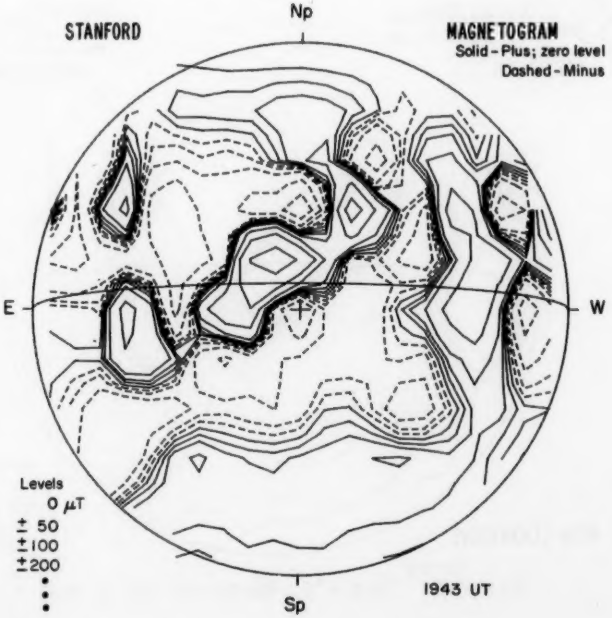
14







GOOD	JA
69- 2400-3.0	
70- 1000-3.0	
71- 1300-3.0	
72- 0700-2.5	
73- 0800-3.0	
76- 4100-3.5	
78- 0500-3.0	
80- 0800-3.0	
81- 2800-3.0	
83- 0200-3.0	
84- 0600-3.0	
85- 2100-3.5	
86- 0200-3.0	
87- 1100-3.0	
89- 0400-3.0	
90- 0900-3.0	
91- 0200-2.5	



APRIL 15, .981 (P=-26.08, B_o=-5.59, L_o=224.13)

SACRAMENTO PEAK Np CORONA 5303 Å

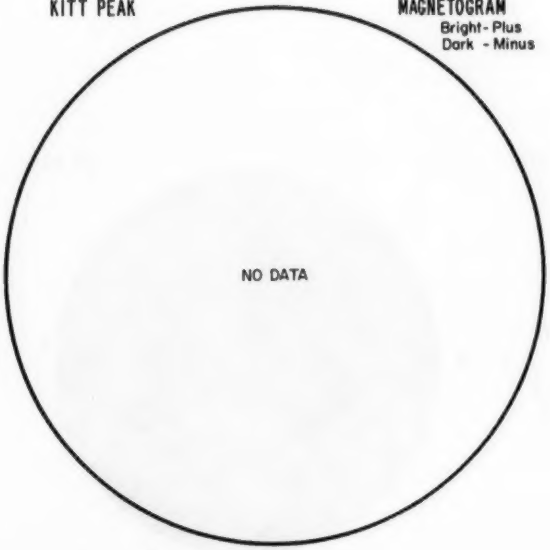
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E NO DATA W

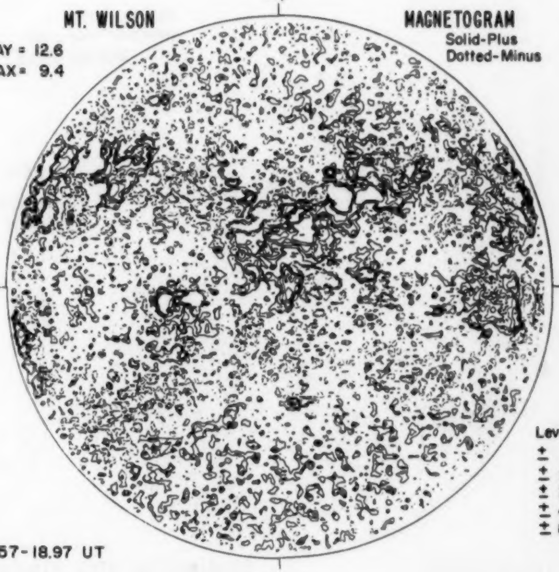


Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

E W



Levels
± 5
± 10
± 20
± 40
± 80

17.57-18.97 UT

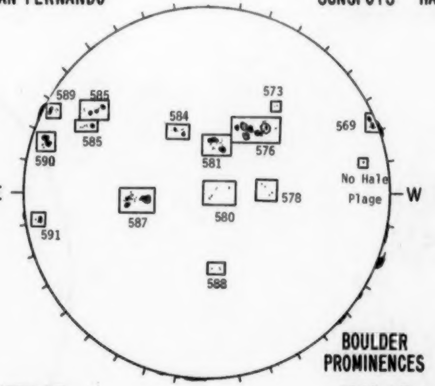
Sp

15

BOULDER Hα

1842 UT

SAN FERNANDO SUNSPOTS

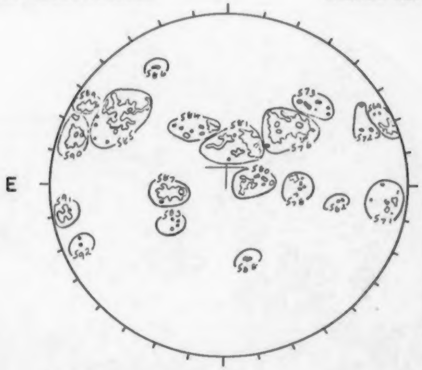


1750 UT

BOULDER PROMINENCES

1842 UT

HALE OBSERVATORIES CALCIUM REPORT



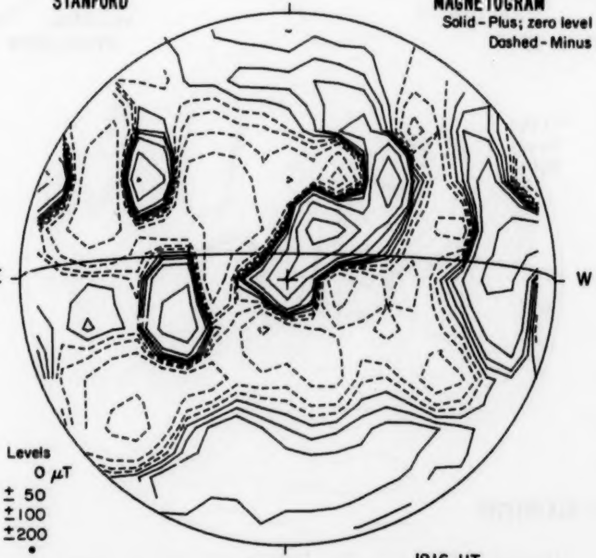
2221 UT

GOOD	JA

69- 2000-2.5
71- 0700-2.5
73- 0400-3.0
76- 4200-3.5
78- 0400-3.0
80- 0800-3.0
81- 2800-3.5
84- 0700-3.0
85- 3000-3.5
86- 0100-2.5
87- 1300-3.0
88- 0100-3.0
89- 1400-3.0
90- 1600-3.0
91- 0800-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
$\pm$ 50
$\pm$100
$\pm$200
⋮

1916 UT

APRIL 16, 1981 (P=-26.02, B_o=-5.51, L_o=210.92)

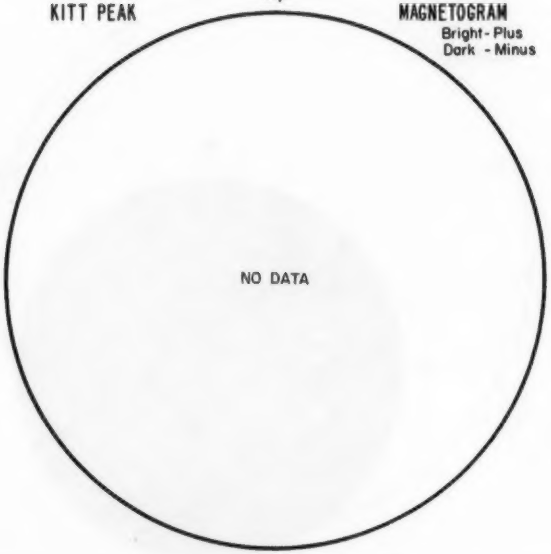
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

$1.15 R_\odot$
$1.35 R_\odot$
$1.55 R_\odot$

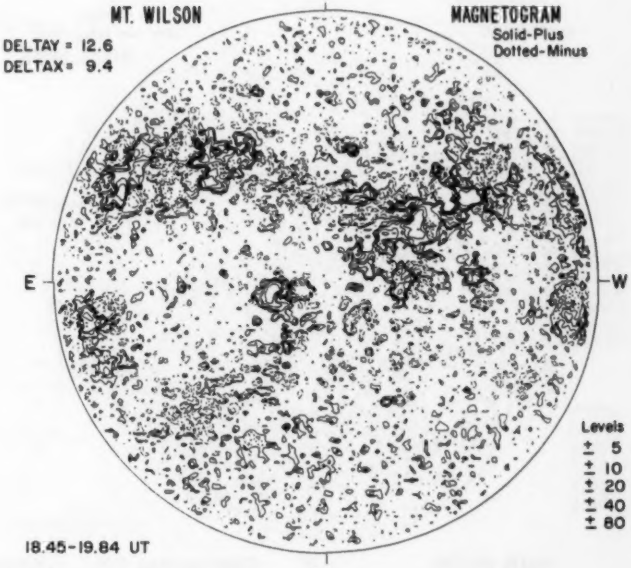
Sp

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

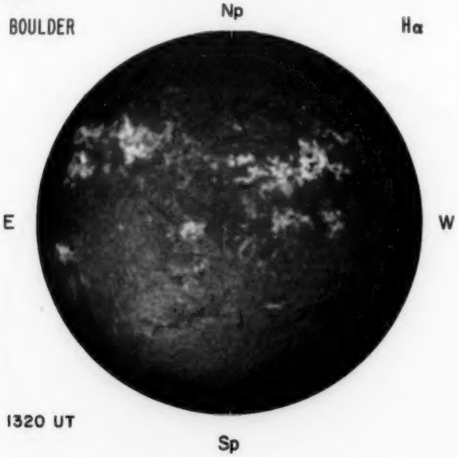
DELTAY = 12.6
DELTAX = 9.4



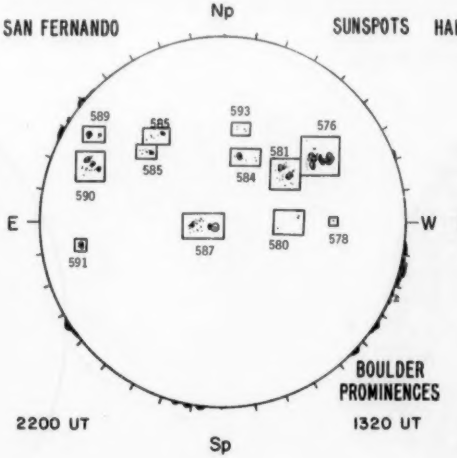
18.45-19.84 UT

16

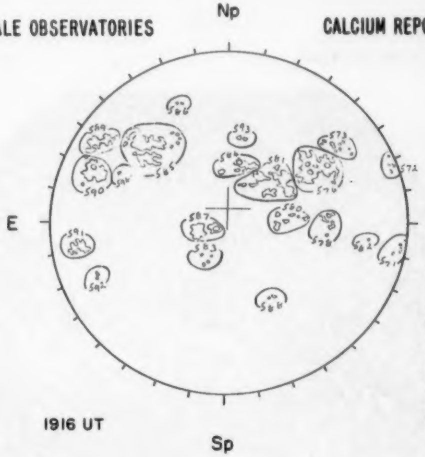
BOULDER Hα



SAN FERNANDO SUNSPOTS



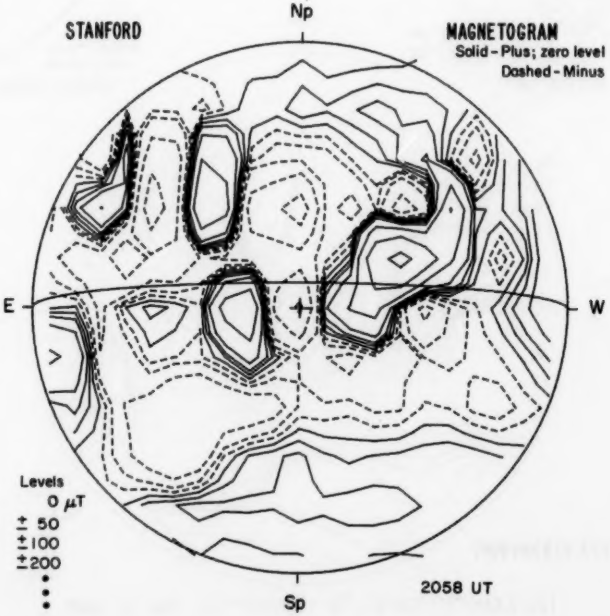
HALE OBSERVATORIES CALCIUM REPORT



GOOD	JA
73-	0400-2.5
76-	4000-3.5
78-	0500-3.0
80-	0700-3.0
81-	1900-3.0
84-	0600-3.0
85-	5000-3.5
87-	1000-2.5
88-	0100-3.0
89-	1700-3.0
90-	1600-3.0
91-	1100-3.0
93-	0200-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



APRIL 17, 1981 (P=-25.95, B_o=-5.43, L_o=197.72)

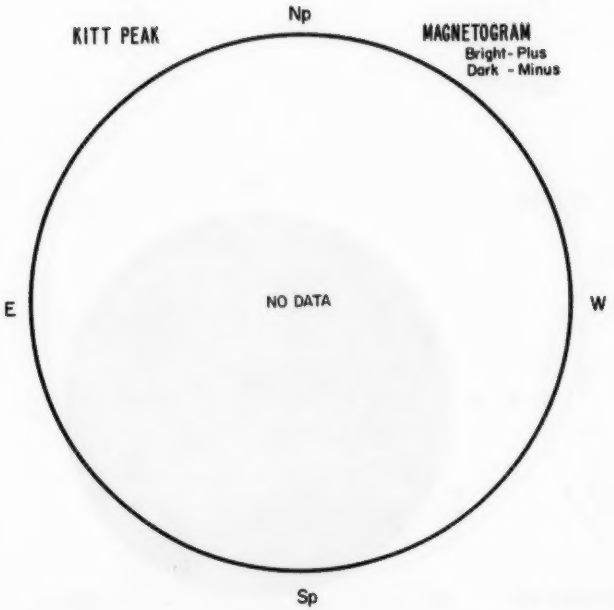
SACRAMENTO PEAK — Np — CORONA 5303 Å

E — NO DATA — W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

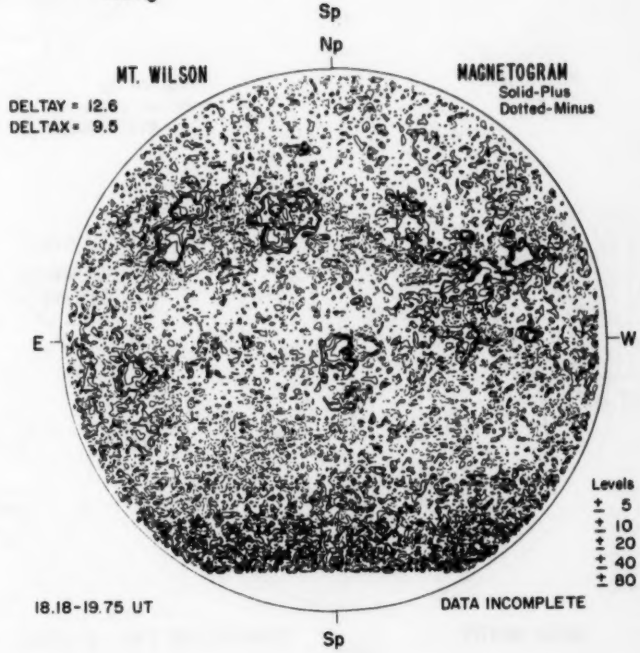
Sp

KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

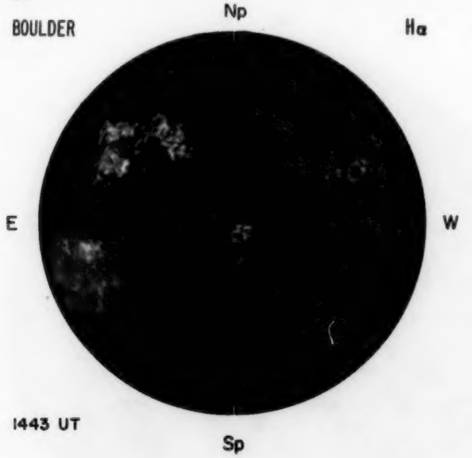


18.18-19.75 UT

DATA INCOMPLETE

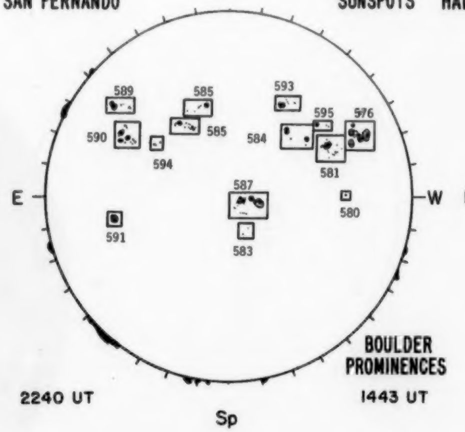
17

BOULDER Hα



1443 UT

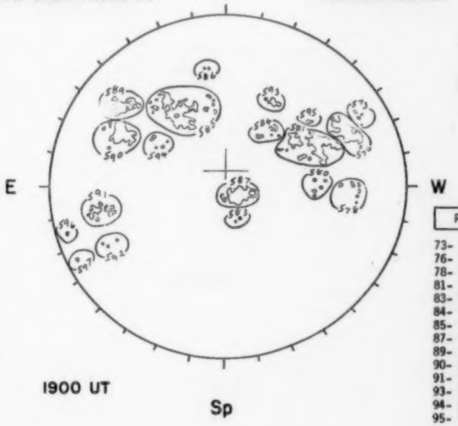
SAN FERNANDO SUNSPOTS



2240 UT

BOULDER PROMINENCES 1443 UT

HALE OBSERVATORIES CALCIUM REPORT

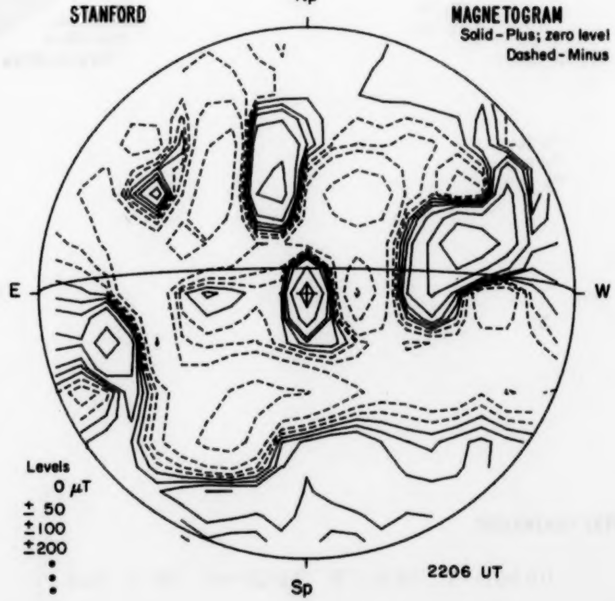


1900 UT

POOR	JA
73-	0400-3.0
76-	3500-3.0
78-	0300-3.0
81-	1800-3.0
83-	0200-2.5
84-	0600-2.5
85-	3600-3.5
87-	0700-3.5
89-	1500-3.0
90-	2000-3.0
91-	1200-3.5
93-	0200-3.0
94-	0100-2.5
95-	0100-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

2206 UT

APRIL 18, 1981 (P=-25.87, B_o=-5.35, L_o=184.51)

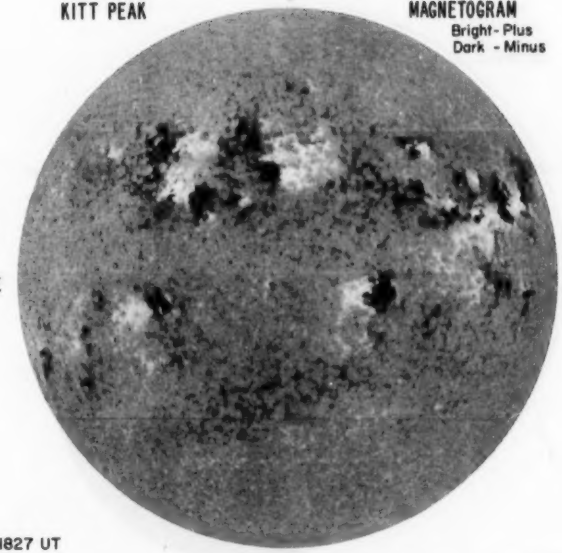
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E  W

1827 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

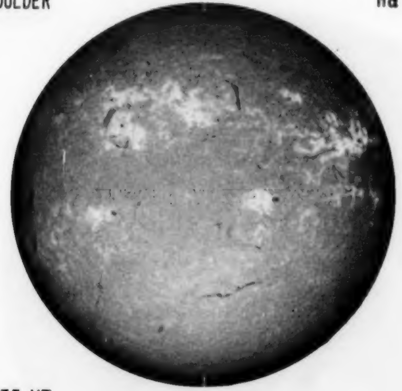
Levels
± 5
± 10
± 20
± 40
± 80

Sp

18

BOULDER Hα 1535 UT

Np

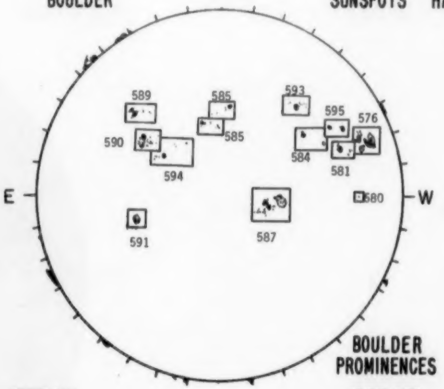
E  W

Sp

BOULDER SUNSPOTS 1600 UT

BOULDER PROMINENCES 1535 UT

Np

E  W

Sp

HALE OBSERVATORIES CALCIUM REPORT

Np

E NO DATA W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

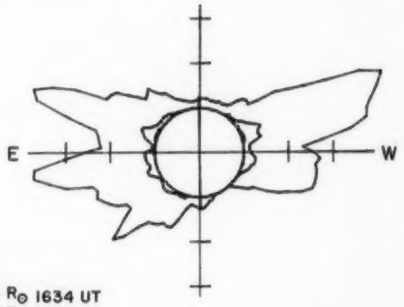
Sp

Levels
0 μT
± 50
±100
±200
⋮

APRIL 19, 1981 (P=-25.79, B_o=-5.27, L_o=171.31)

SACRAMENTO PEAK

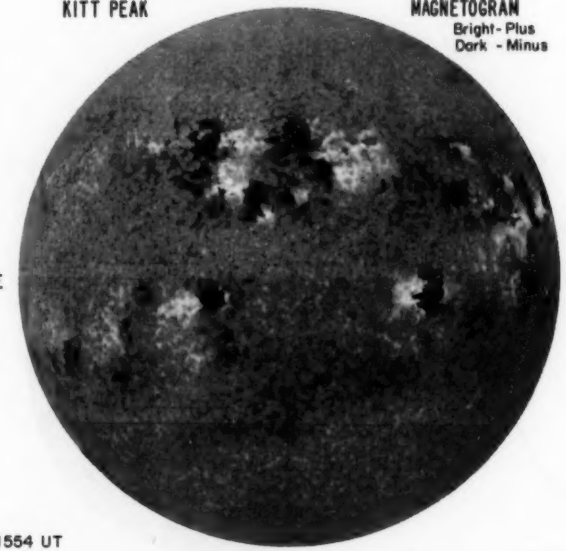
CORONA
5303 Å



1.15 $R_\odot$ 1634 UT
1.35 $R_\odot$ 1614 UT
1.55 $R_\odot$ 1624 UT

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus



1554 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

Np

E NO DATA W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

19

BOULDER Hα

Np

Sp

SAN FERNANDO

Np

E NO DATA W

Sp

SUNSPOTS HALE OBSERVATORIES

BOULDER PROMINENCES

Np

E NO DATA W

Sp

CALCIUM REPORT

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200

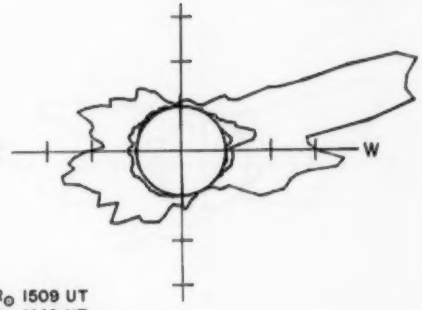
APRIL 20, 1981 (P=-25.69, B_o=-5.18, L_o=158.10)

SACRAMENTO PEAK

CORONA
5303 Å

Np

E



W

1.15 $R_\odot$ 1509 UT
1.35 $R_\odot$ 1449 UT
1.55 $R_\odot$ 1458 UT

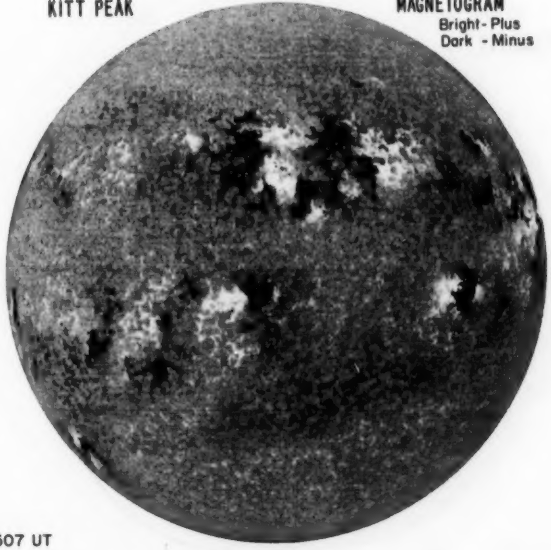
Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E



W

1507 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

DELTAY =
DELTAX =

E

NO DATA

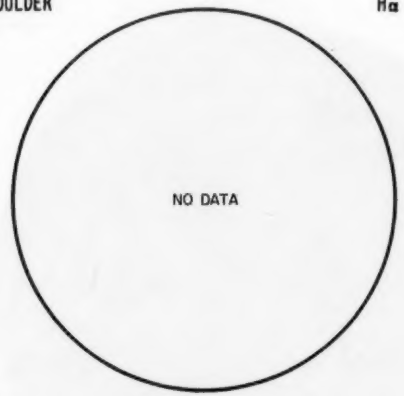
W

Levels
± 5
± 10
± 20
± 40
± 80

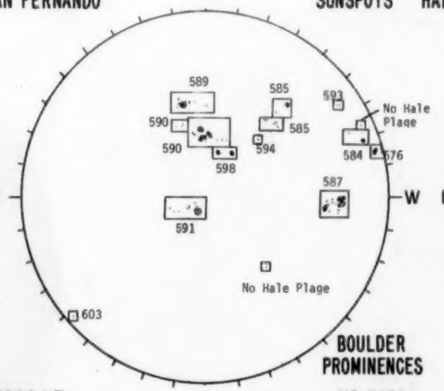
Sp

20

BOULDER Hα



SAN FERNANDO SUNSPOTS HALE OBSERVATORIES



1830 UT

BOULDER PROMINENCES

NO DATA

CALCIUM REPORT

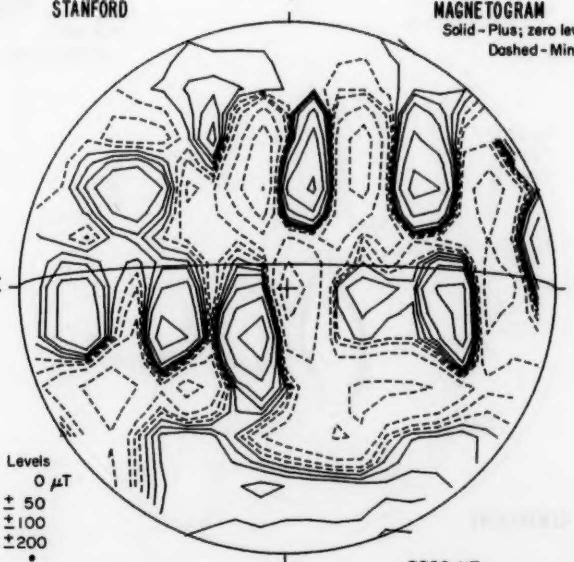
Np

E NO DATA W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2200 UT

APRIL 21, 1981 (P=-25.59, B_o=-5.09, L_o=144.89)

SACRAMENTO PEAK Np CORONA 5303 Å

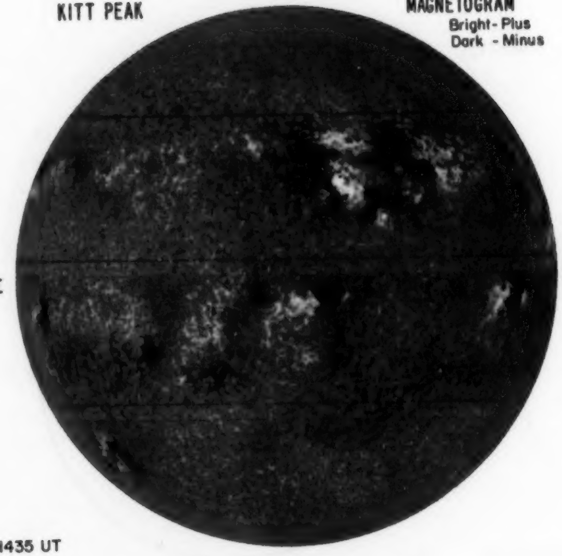
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E



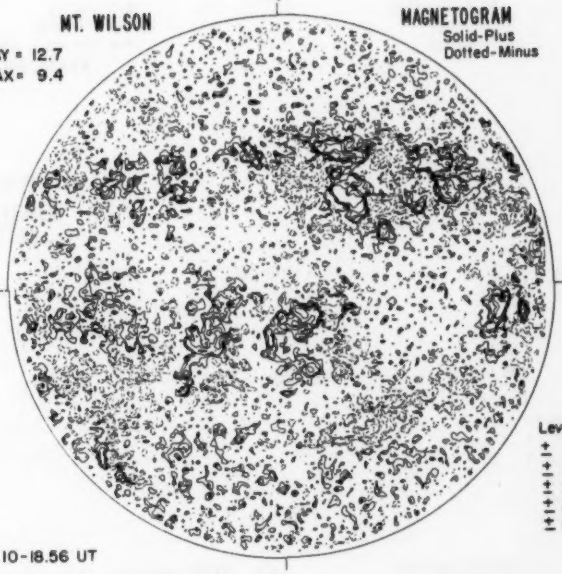
W

1435 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4

E



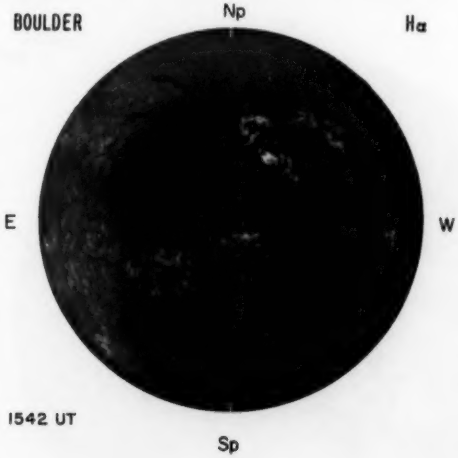
W

Levels
± 5
± 10
± 20
± 40
± 80

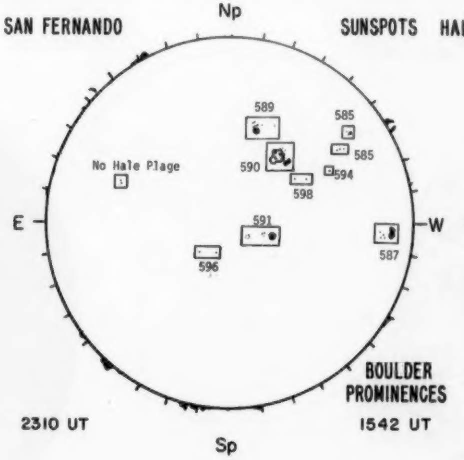
17.10-18.56 UT Sp

21

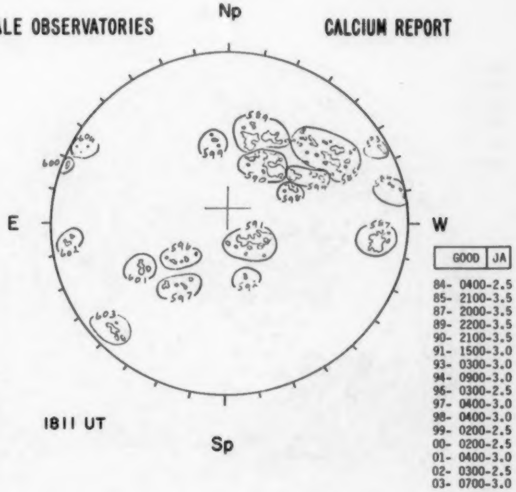
BOULDER Hα



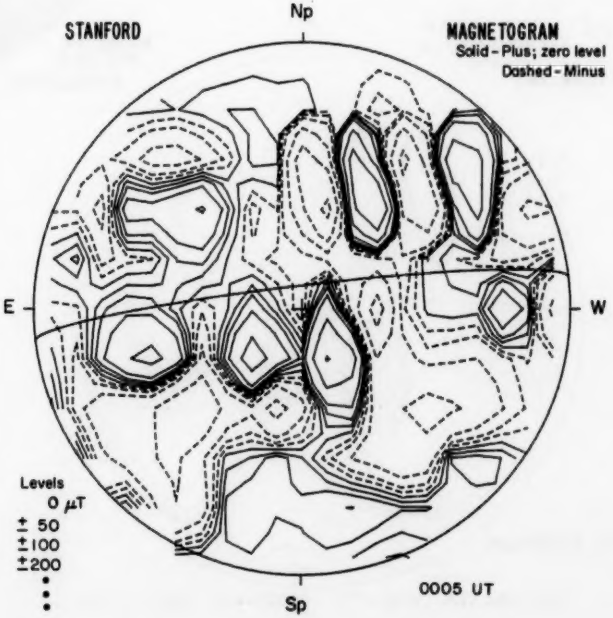
SAN FERNANDO SUNSPOTS



HALE OBSERVATORIES CALCIUM REPORT



STANFORD MAGNETOGRAM



APRIL 22, 1981 (P=-25.49, B_o=-5.00, L_o=131.68)

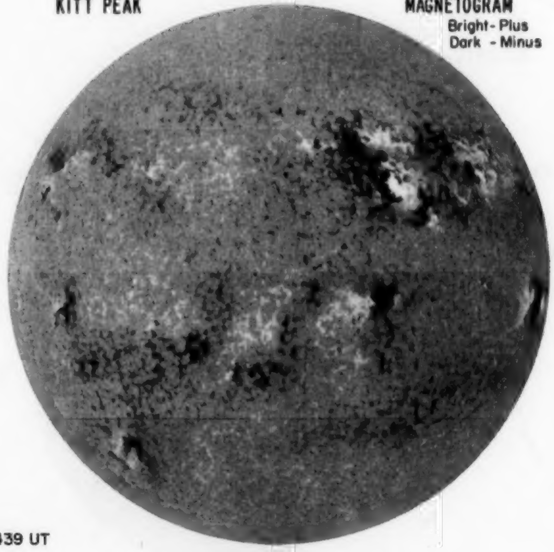
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

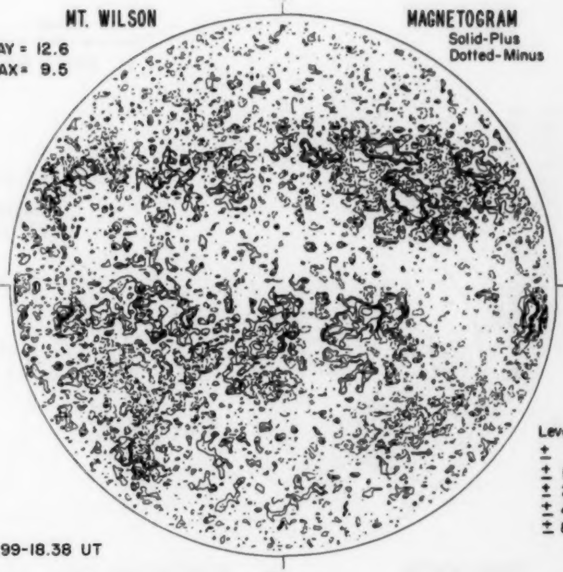
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E  W

1439 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E  W

Levels
± 5
± 10
± 20
± 40
± 80

16.99-18.38 UT Sp

22

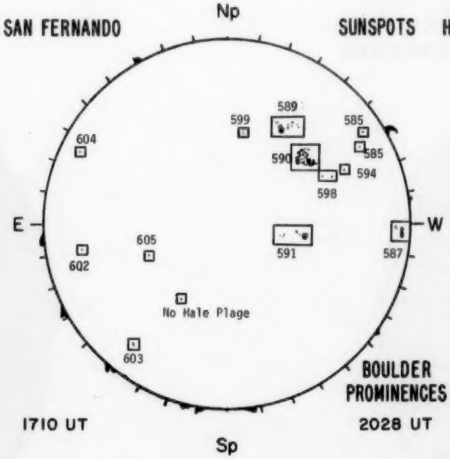
BOULDER

Hα

2028 UT

SAN FERNANDO

SUNSPOTS



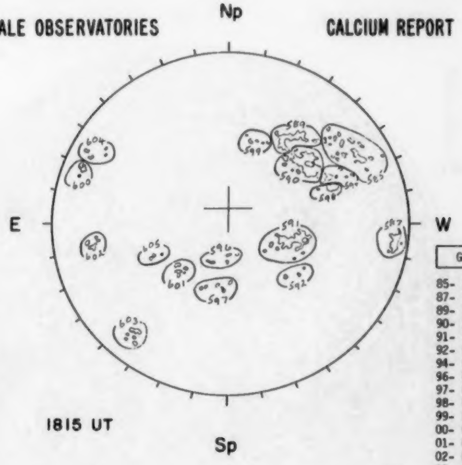
BOULDER
PROMINENCES

1710 UT

2028 UT

HALE OBSERVATORIES

CALCIUM REPORT



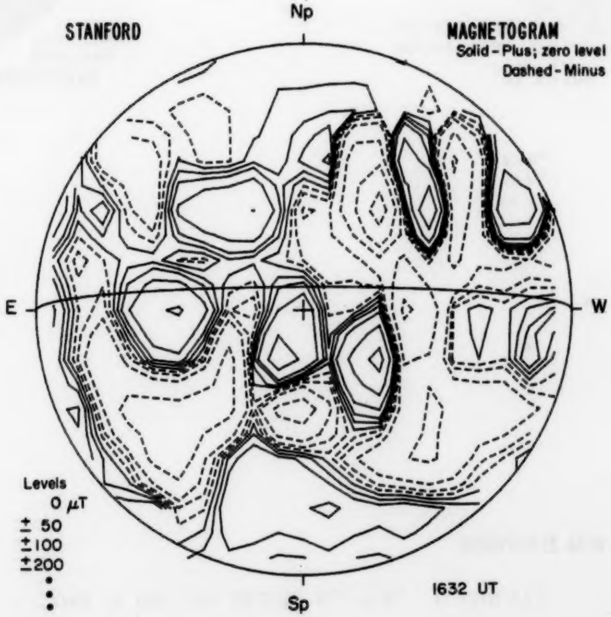
1815 UT

GOOD	JA

85- 2000-3.5
87- 1600-3.5
89- 1600-3.5
90- 2600-3.5
91- 1600-3.0
92- 0200-2.5
94- 0600-3.0
96- 0300-2.5
97- 0400-2.5
98- 0500-3.0
99- 0300-3.0
00- 0400-3.0
01- 0300-2.5
02- 0400-3.0
03- 0700-3.5
04- 0400-2.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

1632 UT

APRIL 23, 1981 (P=-25.37, B_o=-4.91, L_o=118.47)

SACRAMENTO PEAK Np CORONA 5303 Å

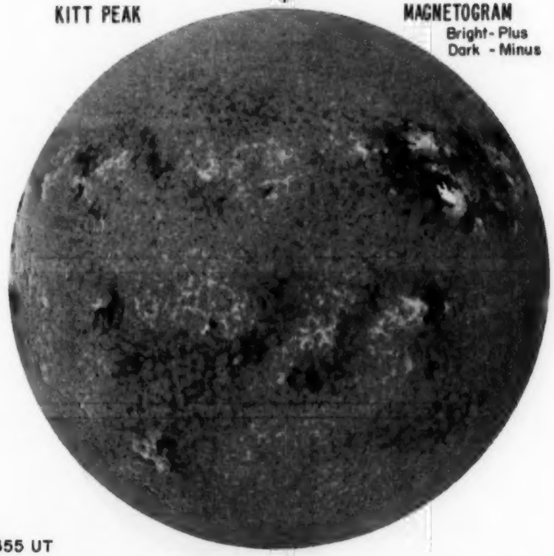
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

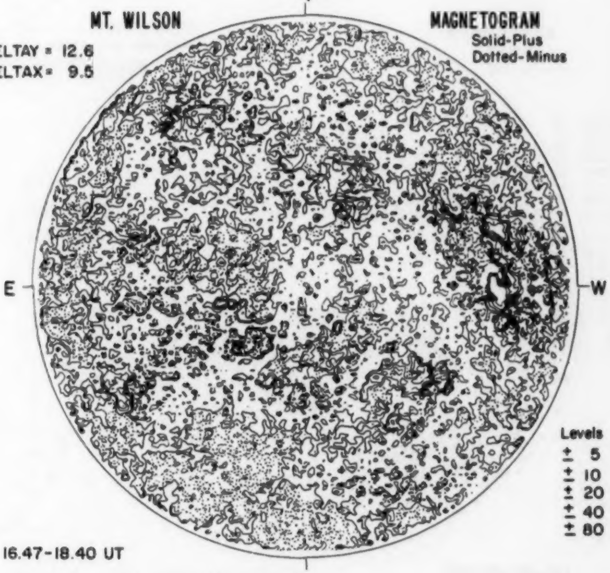


1355 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

16.47-18.40 UT

23

BOULDER Hα

Np

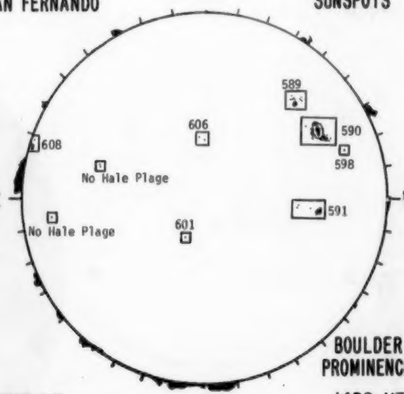
E W

1429 UT

Sp

SAN FERNANDO

Np



E W

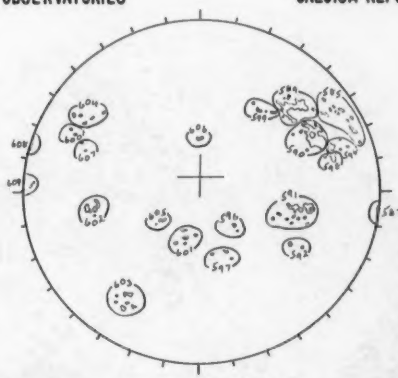
BOULDER PROMINENCES

1810 UT 1429 UT

Sp

SUNSPOTS HALE OBSERVATORIES CALCIUM REPORT

Np



E W

1734 UT

Sp

FAIR	JA

85- 1400-3.5
87- 0500-3.5
89- 2000-3.5
90- 1800-3.5
91- 1200-3.0
94- 0500-3.0
98- 0500-3.0
99- 0300-3.0
01- 0400-3.0
02- 0500-3.0
03- 0500-3.5
04- 0500-2.5
05- 0100-2.5
06- 0100-2.5
08- 0400-3.5
09- 0300-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

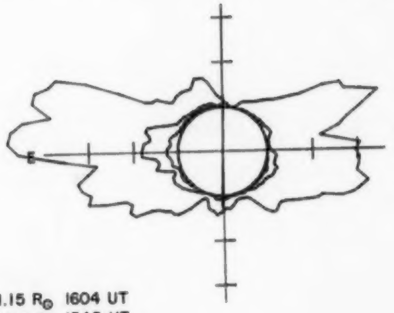
Levels
0 μT
± 50
± 100
± 200

APRIL 24, 1981 (P=-25.25, B_o=-4.82, L_o=105.26)

SACRAMENTO PEAK

Np

CORONA
5303 Å



1.15 $R_\odot$ 1604 UT
1.35 $R_\odot$ 1545 UT
1.55 $R_\odot$ 1554 UT

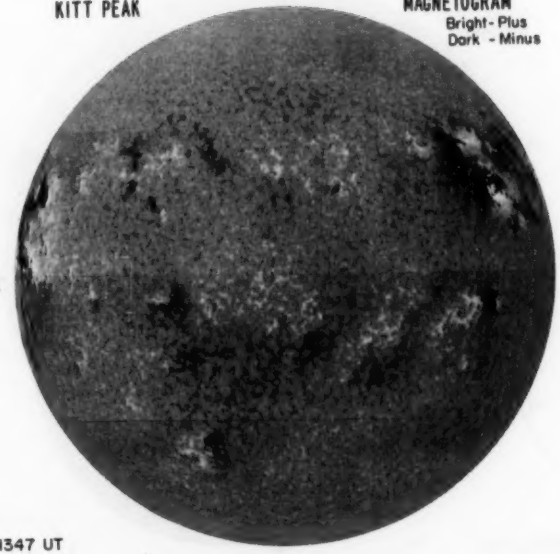
Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E



W

1347 UT

Sp

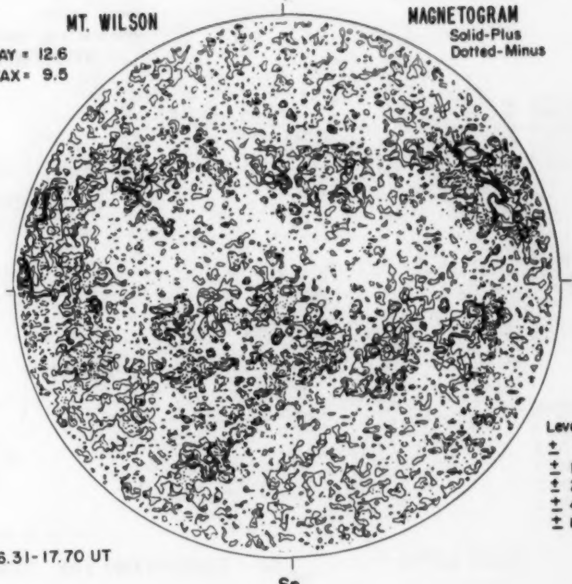
MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E

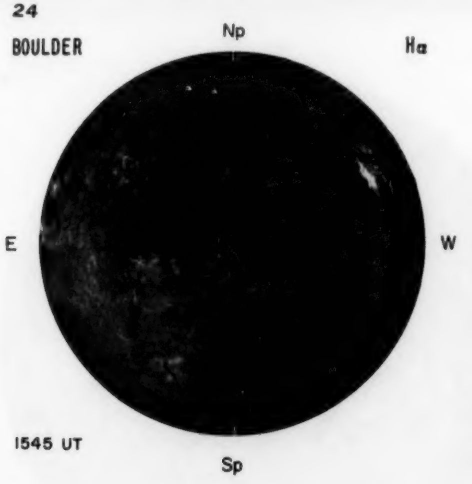


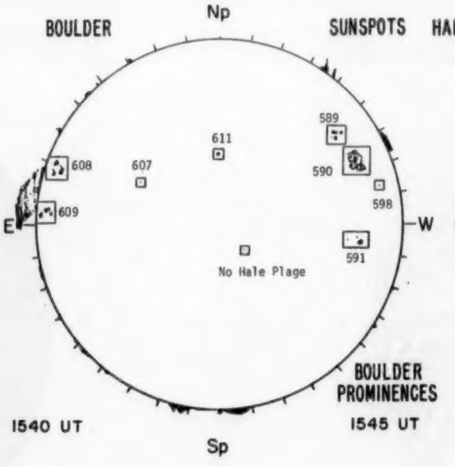
W

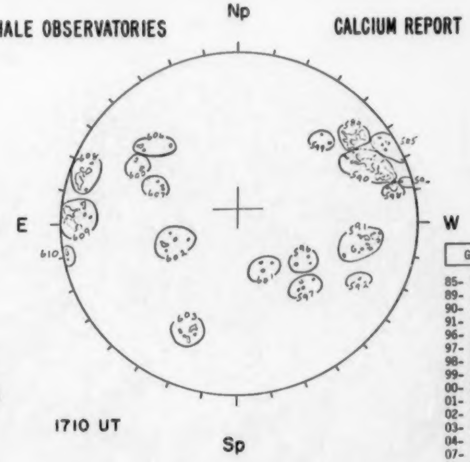
Levels
± 5
± 10
± 20
± 40
± 80

16.31-17.70 UT

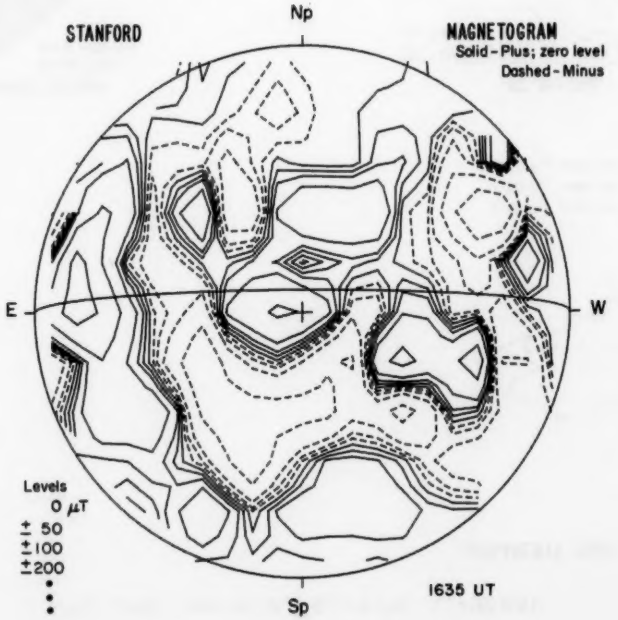
Sp





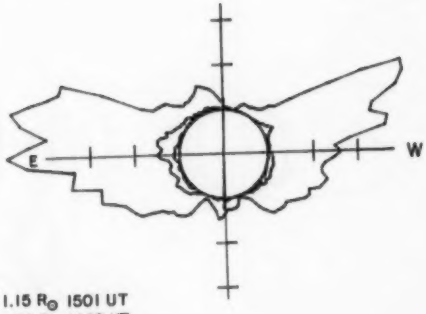


GOOD	JA
85-	0400-3.0
89-	1400-3.5
90-	2100-3.5
91-	1000-3.0
96-	0100-2.5
97-	0200-2.5
98-	0600-3.0
99-	0100-2.5
00-	0200-2.5
01-	0100-2.5
02-	0300-2.5
03-	0500-4.5
04-	0200-3.0
07-	0200-3.0
08-	1400-3.0
09-	1800-3.5



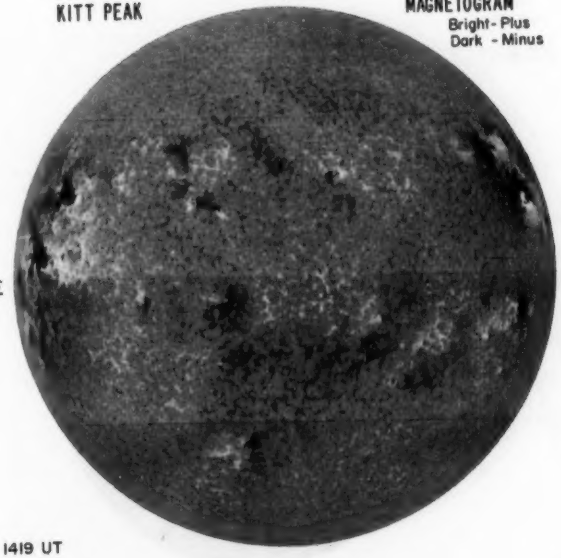
APRIL 25, 1981 (P=-25.12, B_o=-4.73, L_o=92.05)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1501 UT
1.35 $R_\odot$ 1440 UT
1.55 $R_\odot$ 1450 UT

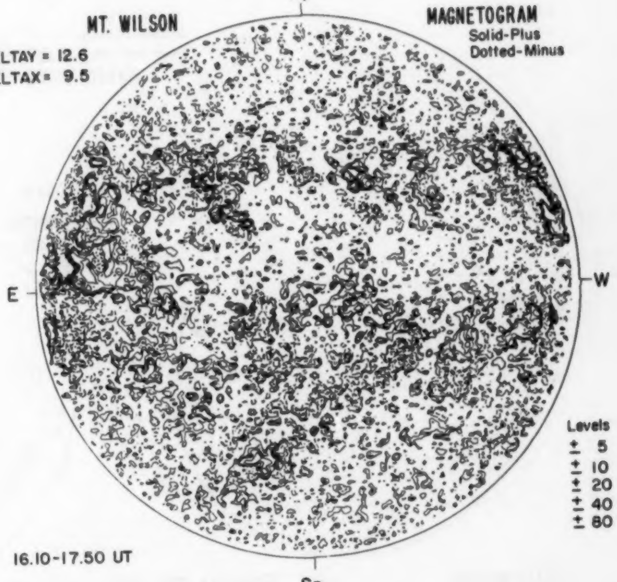
KITT PEAK — MAGNETOGRAM
Bright-Plus
Dark - Minus



1419 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



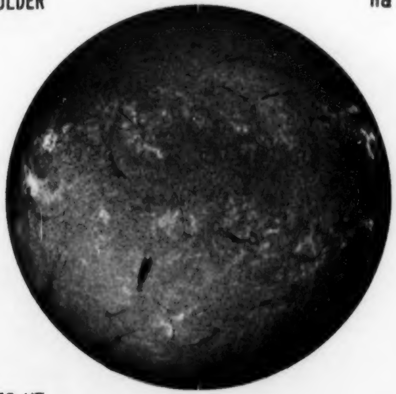
Levels
± 5
± 10
± 20
± 40
± 80

16.10-17.50 UT

25

BOULDER Hα

Np

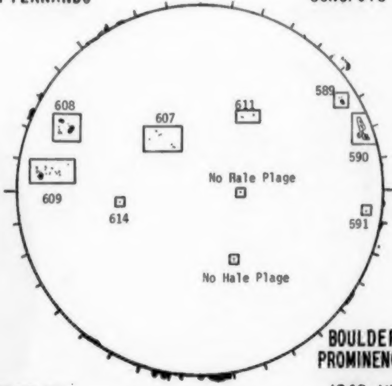
E  W

1649 UT

Sp

SAN FERNANDO SUNSPOTS

Np

E  W

BOULDER PROMINENCES

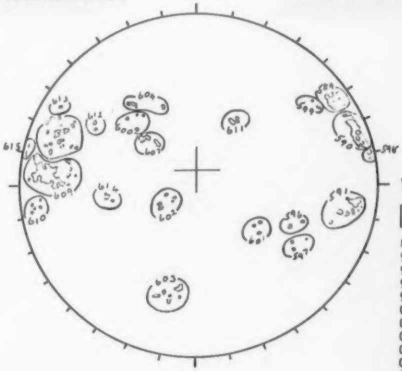
2345 UT

1649 UT

Sp

HALE OBSERVATORIES CALCIUM REPORT

Np

E  W

1643 UT

Sp

GOOD	JA

89- 1500-3.5
90- 1500-3.5
91- 1100-3.0
98- 0400-3.0
99- 0100-3.0
00- 0200-2.5
01- 0200-3.0
02- 0200-2.5
03- 0600-3.5
04- 0300-3.0
07- 0400-3.0
08- 1400-3.5
09- 3400-3.5
11- 0200-3.0
12- 0200-2.5
14- 0200-3.0

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

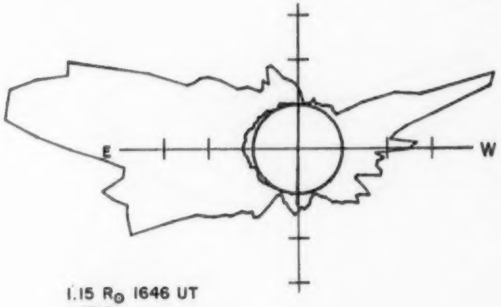
Sp

APRIL 26, 1981 (P=-24.98, B_o=-4.64, L_o=78.83)

SACRAMENTO PEAK

Np

CORONA
5303 Å



1.15 $R_\odot$ 1646 UT
1.35 $R_\odot$
1.55 $R_\odot$ 1635 UT

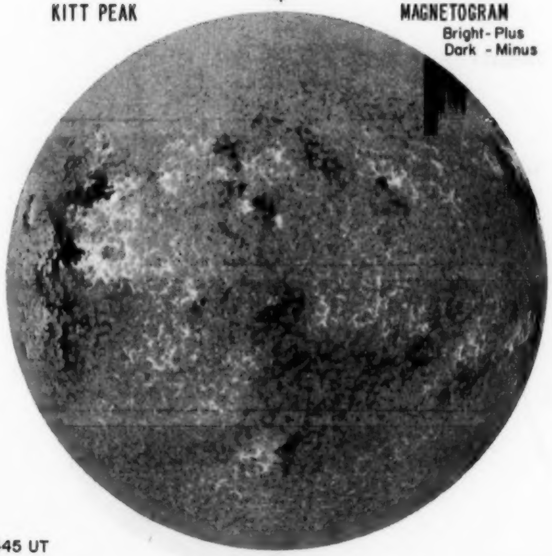
Sp

KITT PEAK

Np

MAGNETOGRAM
Bright-Plus
Dark - Minus

E



W

1445 UT

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

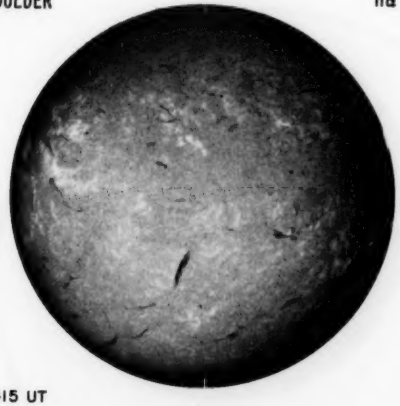
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

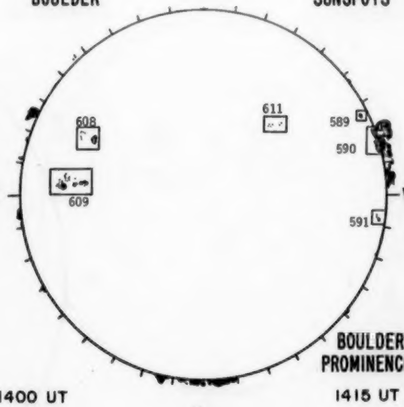
26

BOULDER Hα



1415 UT

BOULDER SUNSPOTS



1400 UT

BOULDER PROMINENCES

1415 UT

HALE OBSERVATORIES CALCIUM REPORT

Np

E NO DATA W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

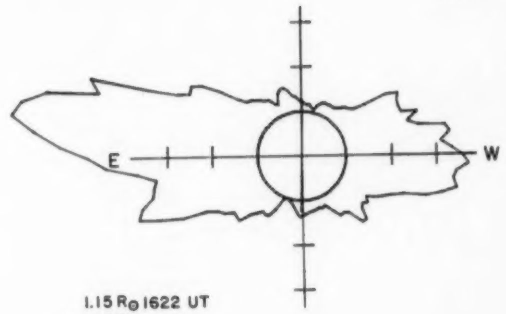
Np

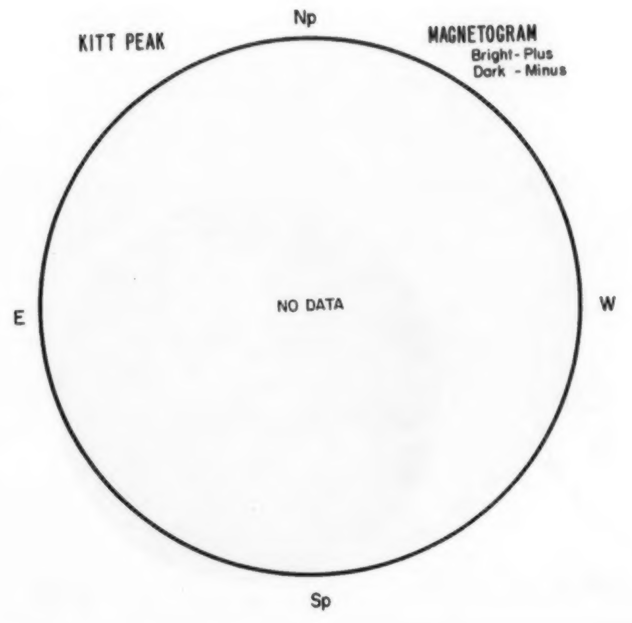
E NO DATA W

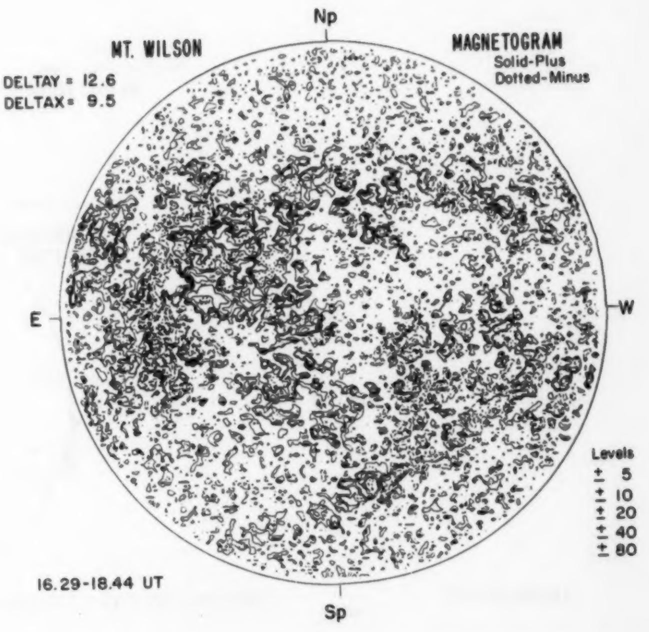
Sp

Levels
0 μT
± 50
±100
±200

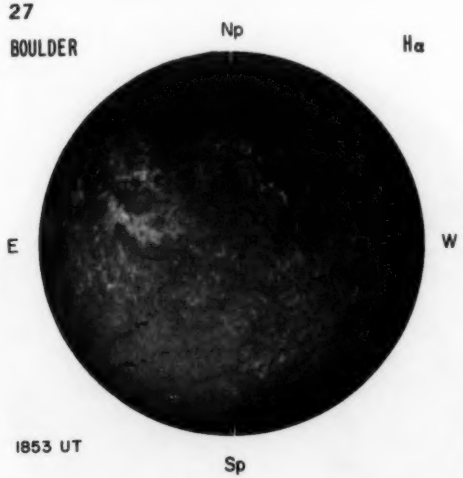
APRIL 27, 1981 (P=-24.84, B_o=-4.54, L_o=65.62)

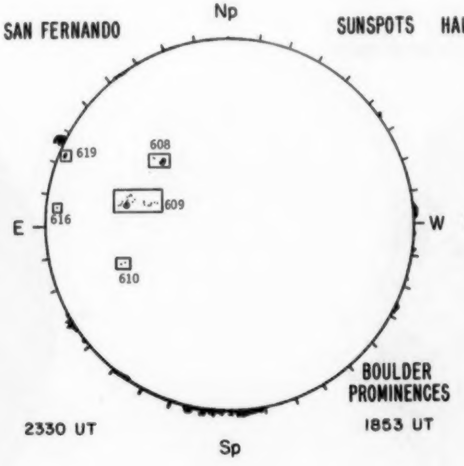


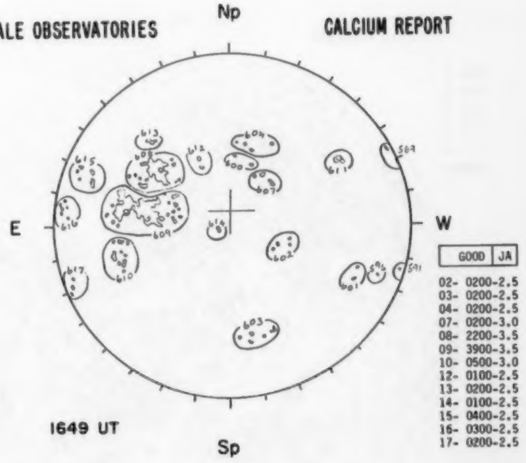


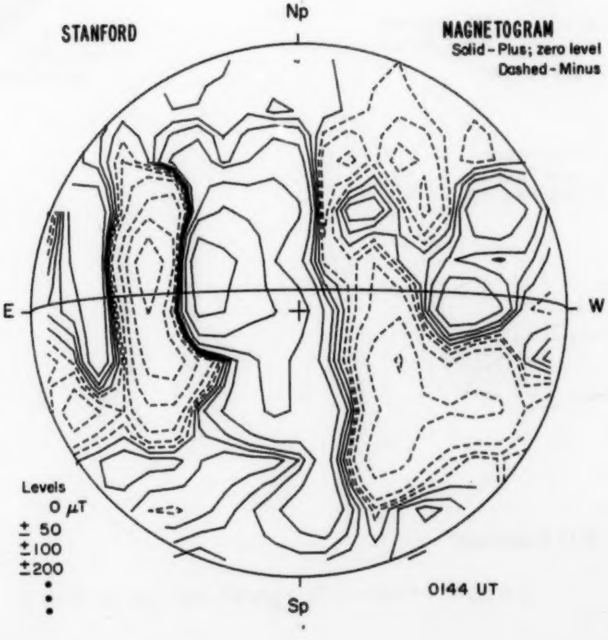


27


BOULDER
Hα
Np
E
W
Sp
1853 UT


SAN FERNANDO
SUNSPOTS
Np
E
W
Sp
619
608
616
609
610
2330 UT
BOULDER
PROMINENCES
1853 UT

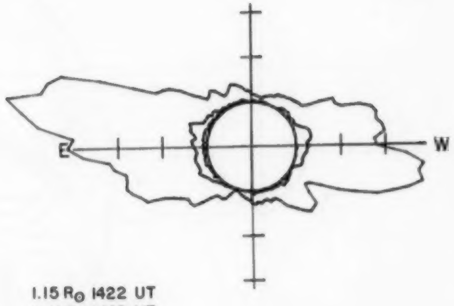

HALE OBSERVATORIES
CALCIUM REPORT
Np
E
W
Sp
1649 UT
GOOD JA
02- 0200-2.5
03- 0200-2.5
04- 0200-2.5
07- 0200-3.0
08- 2200-3.5
09- 3900-3.5
10- 0500-3.0
12- 0100-2.5
13- 0200-2.5
14- 0100-2.5
15- 0400-2.5
16- 0300-2.5
17- 0200-2.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
0144 UT

APRIL 28, 1981 (P=-24.69, B_o=-4.44, L_o=52.41)

SACRAMENTO PEAK

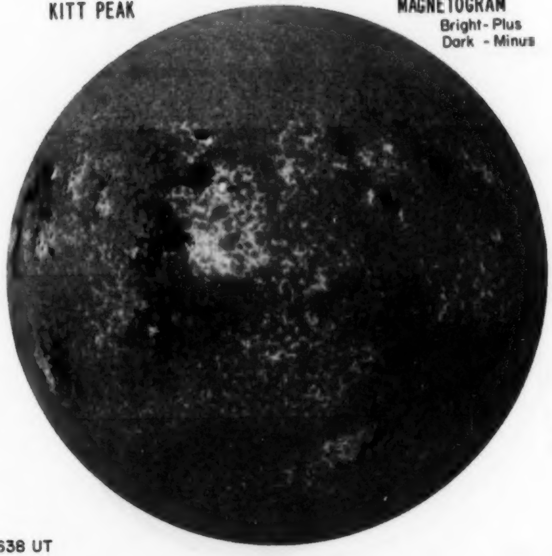
CORONA
5303 Å



1.15 $R_{\odot}$ 1422 UT
1.35 $R_{\odot}$ 1402 UT
1.55 $R_{\odot}$ 1411 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

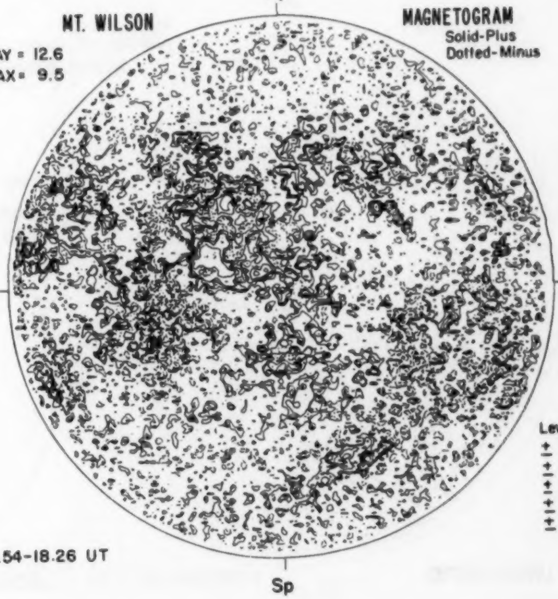


1638 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



Levels
± 5
± 10
± 20
± 40
± 80

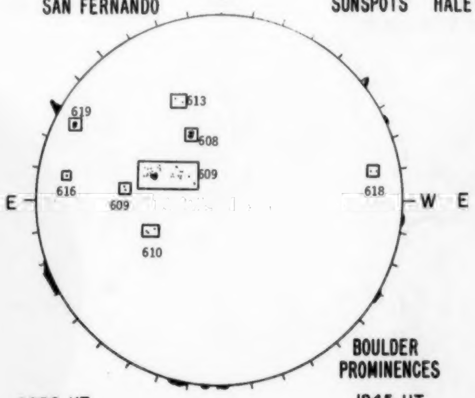
16.54-18.26 UT

28

BOULDER Hα

1845 UT

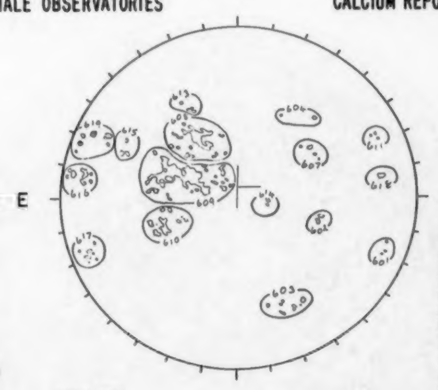
SAN FERNANDO SUNSPOTS



2230 UT

BOULDER PROMINENCES 1845 UT

HALE OBSERVATORIES CALCIUM REPORT

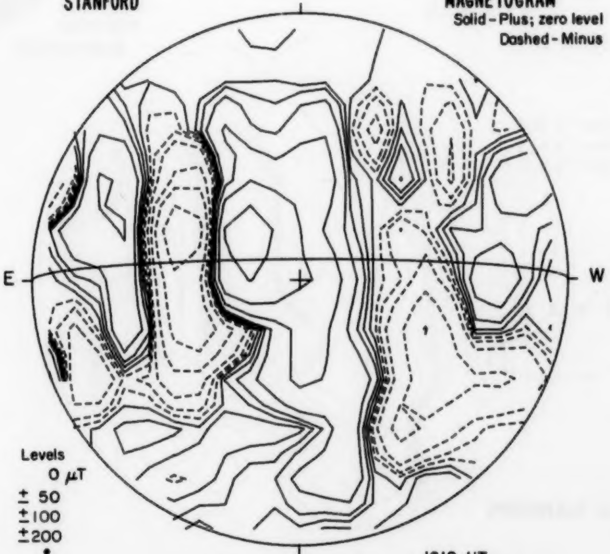


1722 UT

FAIR	JA
02- 0200-3.0	
03- 0400-3.0	
04- 0100-3.0	
07- 0200-3.0	
08- 2000-3.5	
09- 4400-3.5	
10- 1000-3.0	
13- 0200-3.0	
14- 0100-3.0	
15- 0300-3.0	
16- 1000-3.0	
17- 0500-3.0	
18- 0200-3.0	
19- 0700-2.5	

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

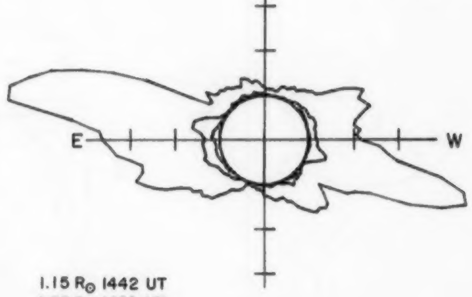


Levels
0 μT
± 50
±100
±200
•
•
•

1612 UT

APRIL 29, 1981 (P=-24.53, B_o=-4.35, L_o=39.19)

SACRAMENTO PEAK   Np   CORONA 5303 Å

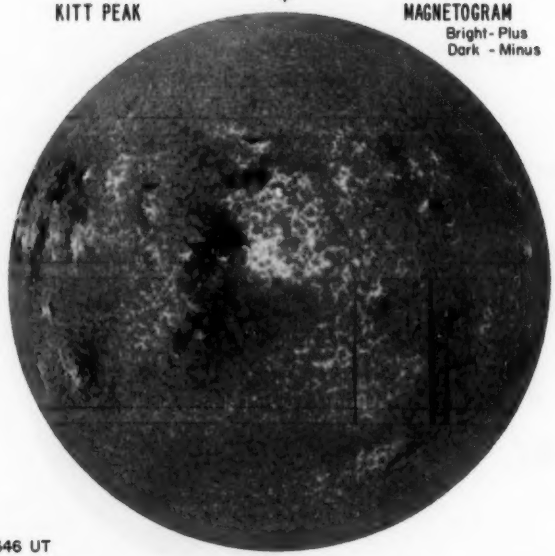


1.15 $R_\odot$ 1442 UT
1.35 $R_\odot$ 1422 UT
1.55 $R_\odot$ 1431 UT

Sp

KITT PEAK   Np   MAGNETOGRAM
Bright-Plus
Dark - Minus

E



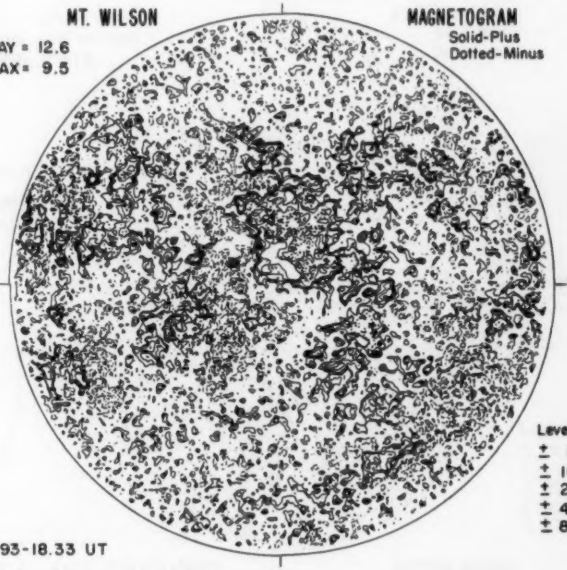
W

1346 UT   Sp

MT. WILSON   Np   MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E



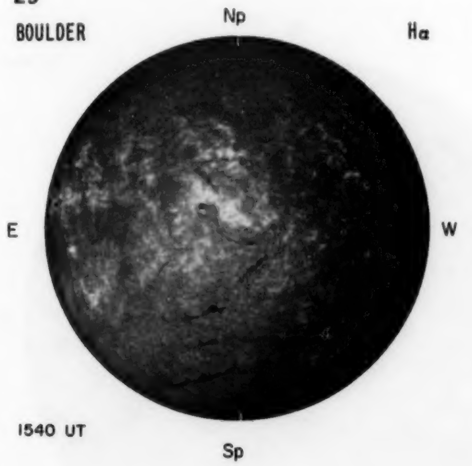
W

Levels
± 5
± 10
± 20
± 40
± 80

16.93-18.33 UT   Sp

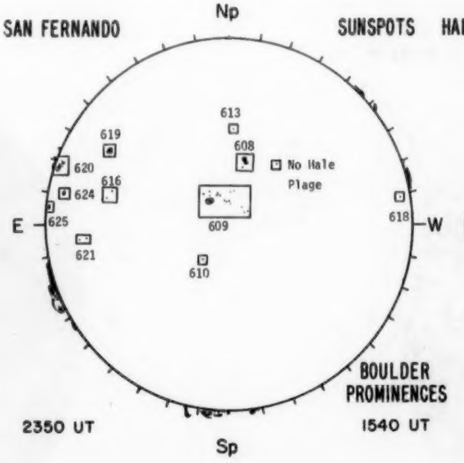
29

BOULDER Hα

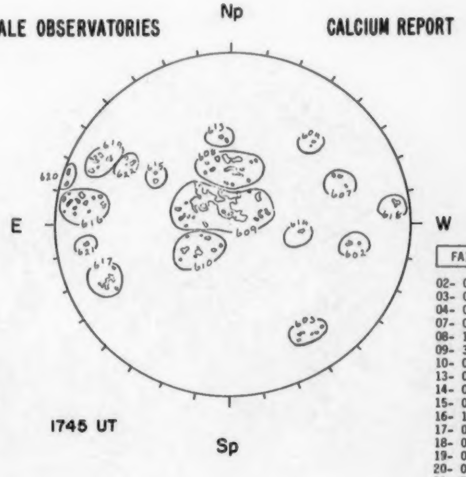


SAN FERNANDO SUNSPOTS

BOULDER PROMINENCES



HALE OBSERVATORIES CALCIUM REPORT

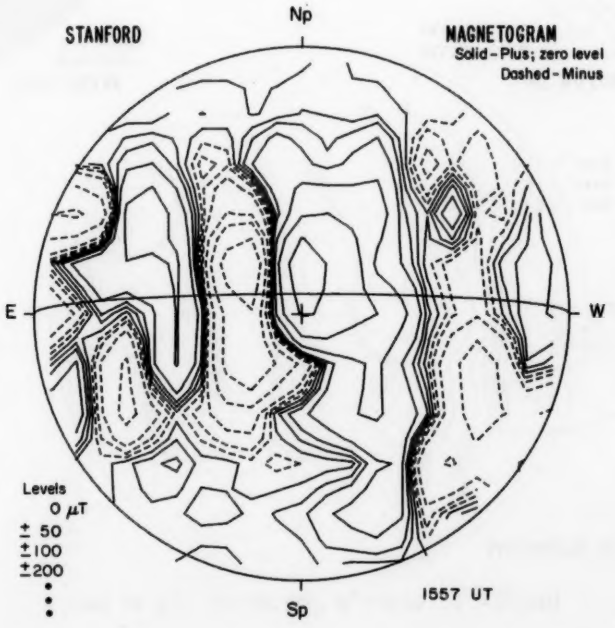


FAIR	JA
02-	0200-3.0
03-	0300-3.0
04-	0100-3.0
07-	0200-3.0
08-	1400-3.5
09-	3600-3.5
10-	0500-3.0
13-	0100-3.0
14-	0100-3.0
15-	0200-3.0
16-	1300-3.0
17-	0600-3.0
18-	0200-3.0
19-	0800-3.0
20-	0300-3.5
21-	0100-3.0
22-	0200-3.0

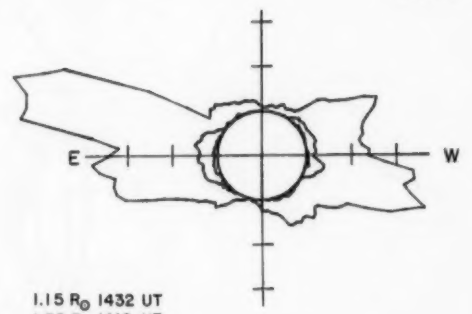
STANFORD MAGNETOGRAM

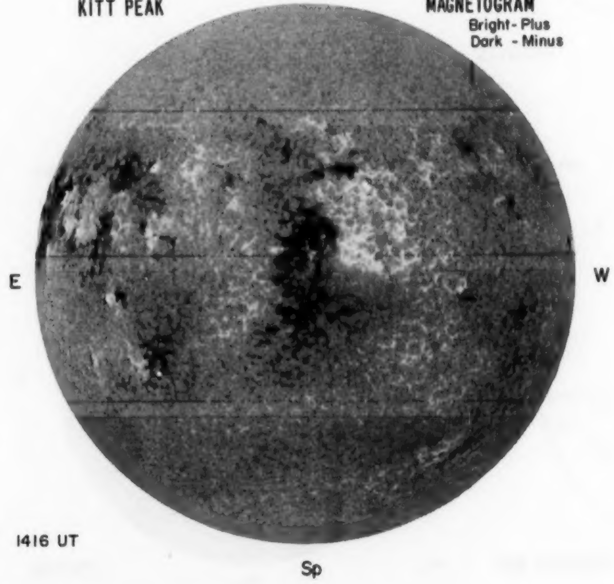
Solid - Plus; zero level

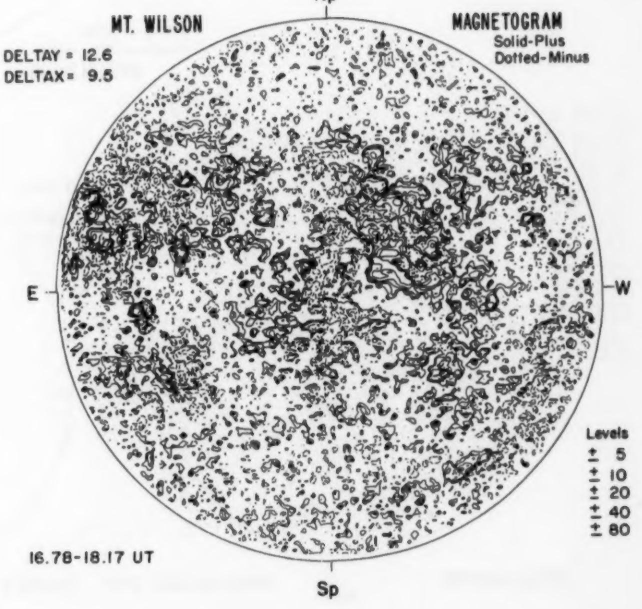
Dashed - Minus



APRIL 30, 1981 ($P=-24.36$, $B_o=-4.25$, $L_o=25.98$)

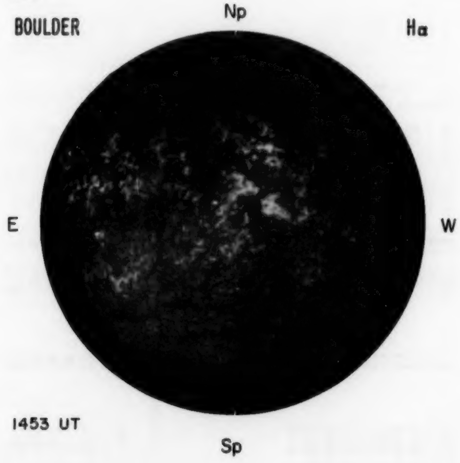






30

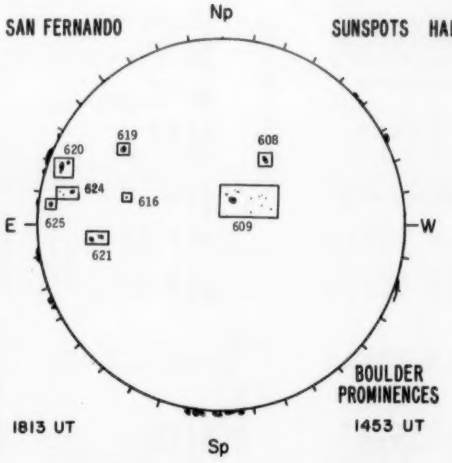
BOULDER Hα



1453 UT

SAN FERNANDO SUNSPOTS

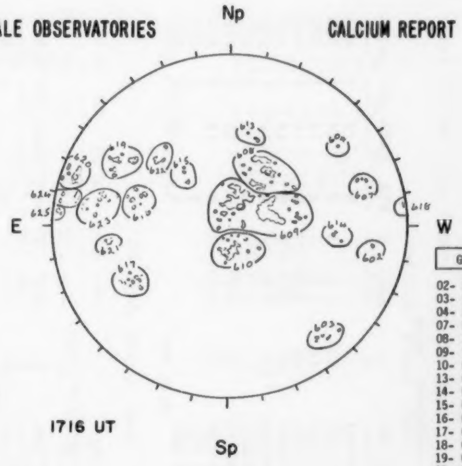
BOULDER PROMINENCES



1813 UT

1453 UT

HALE OBSERVATORIES CALCIUM REPORT

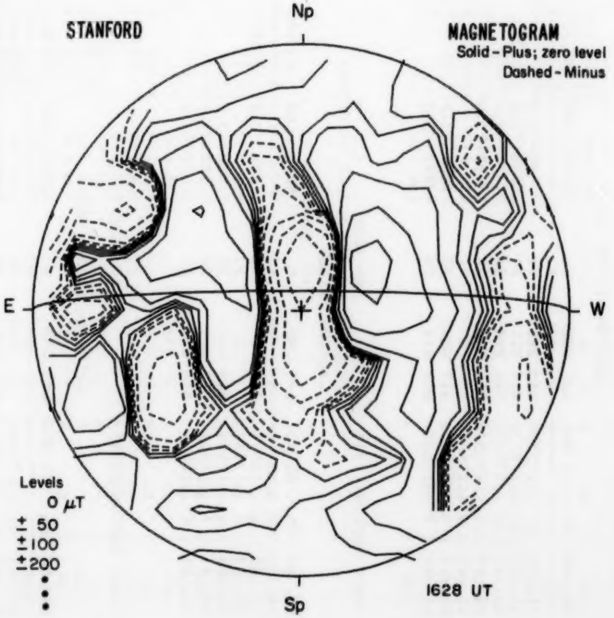


1716 UT

GOOD	JA
02-	0100-2.5
03-	0200-3.0
04-	0100-2.5
07-	0200-3.0
08-	1300-3.5
09-	3300-3.5
10-	0600-3.0
13-	0100-3.0
14-	0100-3.0
15-	0100-3.0
16-	0300-3.0
17-	0400-3.0
18-	0100-3.0
19-	0400-3.0
20-	0500-3.0
21-	0100-3.0
22-	0300-3.0
23-	0500-3.0
24-	0400-3.0
25-	0200-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200

1628 UT

REGIONS OF SOLAR ACTIVITY

APRIL 1981

HALE REGION 17551 CMP DATE 1.6

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	27	17551	N15	E70	36	500	3.0		N18	E60				H	10	2	AXX
81	03	28	17551						22151	N16	E51	42	(B)	3	H	20	3	BXO
81	03	29	17551	N16	E38	41	800	3.0	22151	N20	E38	42	(B)	3	H	10	3	BXO
81	03	30	17551	N16	E26	38	800	3.0	22151	N16	E23	44	(AP)	3	H	10	2	AXX
81	03	31	17551	N17	E11	39	500	3.0	22151	N17	E08	45	(AP)	3	H	10	2	AXX
81	04	1	17551	N17	W03	41	800	3.5	22151	N17	W0E	424	(B)	2	M	50	1	HSX
81	04	2	17551							N17	W12				B	30	3	CSO
81	04	3	17551						22151	N18	W24	38	(AF)	3	P	20	2	HSX
81	04	4	17551	N18	W44	42	1000	3.0	22151	N18	W38	39	(BF)	3	H	10	2	AXX
81	04	5	17551	N18	W53	38	1200	3.0		N18	W52				H		1	AXX
81	04	6	17551	N18	W67	40	900	2.5		N18	W63				B	10	1	AXX

HALE REGION 17553 CMP DATE 2.3

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	29	17553	N16	E49	30	400	3.0		N14	E49				H		1	AXX
81	03	30	17553	N16	E35	29	200	3.0	22162	N15	E37	30	(AP)	3	H	50	8	CSO
81	03	31	17553	N16	E20	30	300	3.0		N18	E10				R	20	4	BXO
81	04	1	17553	N15	E08	30	300	3.0		N17	E03				B	10	3	BXO
81	04	2	17553							N17	W12				B	30	3	CSO
81	04	4	17553	N17	W33	31	100	3.0		N17	W38				H	10	2	AXX
81	04	5	17553	N16	W44	29	100	2.5		N18	W52				H		1	AXX

HALE REGION 17564 CMP DATE 2.5

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	1	17564	S12	E08	30	200	3.0	22168	S11	E12	28	(B)	4	H	40	3	DAO
81	04	2	17564							S10	W01				B	20	2	BXO
81	04	4	17564	S09	W30	28	100	3.0										
81	04	5	17564	S11	W43	28	100	3.0										
81	04	6	17564	S11	W56	29	100	3.0										

HALE REGION 17555 CMP DATE 2.7

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	28	17555						22153	N03	E71	22	X	1	H	10	1	AXX
81	03	29	17555	N03	E56	23	700	3.5	22158	N08	E60	20	X	2	H	40	6	CRO
81	03	30	17555	N04	E42	22	1300	3.0	22158	N04	E46	21	(BY)	4	H	40	4	CSO
81	03	31	17555	N03	E26	24	600	3.0	22158	N04	E33	20	(AF)	4	H	10	2	HSX
81	04	1	17555	N03	E12	26	700	3.0	22158	N04	E22	18	(AF)	4	B	30	1	HSX
81	04	3	17555						22158	N04	W05	19	(AF)	2	P		2	AXX
81	04	4	17555	N03	W27	25	1000	3.0		N04	W26				P	10	2	AXX
81	04	5	17555	N03	W42	27	400	2.5		N04	W39				P	10	1	AXX
81	04	6	17555	N03	W53	26	400	2.5										
81	04	7	17555	N05	W62	21	200	2.0										

HALE REGION 17552 CMP DATE 2.9

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	28	17552						22152	N24	E65	28	X	3	H	300	9	DAO
81	03	29	17552	N24	E55	24	500	3.0	22152	N29	E52	28	(AP)	4	H	240	10	DSO
81	03	30	17552	N24	E40	24	700	3.5	22152	N25	E41	26	(B)	4	H	150	13	DAO
81	03	31	17552	N24	E25	25	500	3.5	22152	N25	E30	23	(B)	4	H	130	13	DAO
81	04	1	17552	N24	E14	24	1100	3.5	22152	N25	E17	23	(BF)	4	H	120	19	DAI

CONTD

REGIONS OF SOLAR ACTIVITY

APRIL 1981

HALE REGION 17552 (CONT) CMP DATE 2.9

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	2	17552							N24	E05				B	90	5	DSO
81	04	3	17552						22152	N26	W18	32	(B)	4	P	50	7	DSO
81	04	4	17552	N26	W24	22	1100	3.5	22152	N25	W23	24	(BF)	4	H	10	4	BXO
81	04	5	17552	N26	W35	20	1100	3.0										
81	04	6	17552	N26	W50	23	800	3.0	22185	N25	W46	20	(AP)	2				
81	04	7	17552	N26	W60	19	400	3.0										
81	04	8	17552	N26	W75	21	500	2.5										

HALE REGION 17554 CMP DATE 3.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	29	17554	N13	E63	16	600	3.5	22156	N19	E60	20	X	2	H	60	5	CSO
81	03	30	17554	N13	E46	18	1300	3.0	22156	N13	E46	21	(BP)	4	H	50	8	CSO
81	03	31	17554	N13	E30	20	1000	3.5	22156	N12	E33	20	(BP)	4	H	70	12	DSO
81	04	1	17554	N13	E18	20	1500	3.5	22156	N12	E19	21	(BP)	4	H	90	25	DAI
81	04	2	17554							N12	E01				M	100	9	DAO
81	04	3	17554						22156	N13	W08	22	(BP)	4	P	90	7	DAI
81	04	4	17554	N16	W22	20	1200	3.0	22156	N14	W20	21	(B)	4	H	120	10	DAO
81	04	5	17554	N16	W34	19	1200	3.0	22156	N13	W34	21	(B)	3	H	20	6	BXO
81	04	6	17554	N16	W47	20	1000	3.0	22156	N13	W45	19	(B)	3	B	20	4	BXO
81	04	7	17554	N16	W59	18	400	3.0		N14	W60				P	10	1	AXX
81	04	8	17554	N16	W72	18	300	2.5		N14	W64				L		1	AXX

HALE REGION 17557 CMP DATE 3.9 RETURN OF REGION 17498 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	28	17557						22154	S04	E78	15	X	2	H	60	1	AXX
81	03	29	17557	S06	E68	11	600	3.0	22159	N01	E67	13	X	2	H	40	6	CRO
81	03	29	17557	S06	E68	11	600	3.0	22154	S02	E68	12	X	1	H	150	4	DSO
81	03	30	17557	S05	E54	10	1200	3.0	22159	S05	E54	13	(BP)	4	H	30	4	CSO
81	03	31	17557	S06	E39	11	1100	3.0	22159	S04	E42	11	(AP)	4	R	60	2	CSO
81	04	1	17557	S06	E27	11	1500	3.0	22170	S01	E37	3	(AF)	2	H	40	1	HSX
81	04	1	17557	S06	E27	11	1500	3.0	22159	S04	E28	12	(AP)	4	H	40	1	HSX
81	04	2	17557							S03	E14				B	40	1	HSX
81	04	3	17557						22159	S03	E02	12	(AP)	4	P	20	4	CSO
81	04	4	17557	S05	W11	9	1000	3.0	22176	S05	W01	2	(AF)	2	H		1	AXX
81	04	4	17557	S05	W11	9	1000	3.0	22159	S03	W13	14	(BY)	3	H	10	3	BXO
81	04	5	17557	S06	W25	10	900	3.0	22176	S06	W15	2	(AF)	2	H		1	AXX
81	04	5	17557	S06	W25	10	900	3.0	22159	S03	W25	12	(AP)	2	H		1	AXX
81	04	6	17557	S06	W34	7	1000	3.0	22159	S02	W36	10	(AP)	1	B	20	8	BXO
81	04	6	17557	S06	W34	7	1000	3.0	22176	S06	W30	4	(B)	3	B	20	8	BXO
81	04	6	17557	S06	W34	7	1000	3.0	22186	S06	W37	11	AP	1	B	20	8	BXO
81	04	7	17557	S06	W45	4	1100	3.0	22176	S07	W43	4	B	4	B	90	8	DRI
81	04	8	17557	S06	W61	7	900	3.0	22176	S07	W57	5	(B)	3	H	40	4	DAO
81	04	9	17557	S06	W69	3	600	3.0	22176	S07	W70	5	(B)	3	H	10	2	BXO
81	04	10	17557	S06	W85	6	200	2.5										

HALE REGION 17556 CMP DATE 4.1 RETURN OF NORTH PART OF REGION 17500 ROTATIONS 4 AND 6

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	29	17556	N09	E70	9	200	2.5	22157	N15	E68	12	X	1	H		1	AXX
81	03	30	17556	N09	E58	6	400	2.0	22157	N10	E55	12	(AP)	4	H	30	1	HRX
81	03	31	17556	N09	E38	12	300	2.0	22157	N10	E41	12	(AP)	3	H	10	1	HRX
81	04	1	17556	N09	E29	9	300	3.0	22157	N09	E27	13	(AP)	4	H	10	1	AXX
81	04	2	17556							N09	E13				B		1	AXX
81	04	4	17556	N12	W09	7	600	3.0		N13	W11				L	100	16	CAO
81	04	5	17556	N12	W23	8	300	3.0										
81	04	6	17556	N12	W34	7	200	3.0		N14	W39				L	20	6	BXO
81	04	7	17556	N12	W48	7	200	2.5		N15	W51				L		3	AXX

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HALE REGION 17558 CMP DATE 4.2

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	29	17558	S14	E75	4	700	3.0										
81	03	30	17558	S14	E59	5	1100	3.0	22163	S11	E57	10	(AP)	2				
81	03	31	17558	S14	E43	7	1000	3.0	22165	S13	E54	359	(AF)	2				
81	03	31	17558	S14	E43	7	1000	3.0	22163	S13	E45	8	(AP)	3				
81	04	1	17558	S14	E31	7	700	3.0	22169	S16	E32	8	(AP)	2	H	10	2	BXO
81	04	4	17558	S14	W08	6	500	3.0										
81	04	5	17558	S14	W18	3	600	3.0	22180	S14	W13		X	1	P	10	4	BXO
81	04	5	17558	S14	W18	3	600	3.0	22179	S13	W23	10	(AP)	2	P	10	5	BXO
81	04	6	17558	S14	W36	9	500	3.0		S09	W32				P	50	6	CAO
81	04	7	17558	S14	W46	5	500	2.5		S15	W42				H	90	15	DAO
81	04	8	17558	S14	W60	6	400	2.5										
81	04	9	17558	S15	W71	5	100	2.0										

HALE REGION 17559 CMP DATE 5.4 NEW, IN LOCATION OF FRONT PART OF 17505

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	30	17559	N17	E78	346	200	2.0		N17	E83				H	50	1	HAX
81	03	31	17559	N10	E58	352	200	2.0		N11	E50				M	20	1	HRX
81	04	1	17559	N10	E48	350	200	2.5		N06	E58				M	130	2	CSO
81	04	2	17559															
81	04	4	17559	N12	E08	350	200	3.0										
81	04	5	17559	N12	W05	350	200	2.5										
81	04	6	17559	N09	W18	351	100	2.0										
81	04	7	17559	N10	W32	351	100	2.0										

HALE REGION 17560 CMP DATE 6.0 NEW, IN LOCATION OF 17504 & REAR 17505

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	30	17560						22164	N18	E80	347	(AP)	2	H	50	1	HAX
81	03	31	17560	N17	E66	344	400	2.5	22164	N17	E66	347	(BP)	4	H	80	4	CAO
81	04	1	17560	N17	E52	346	600	3.0	22164	N17	E53	347	(BP)	4	H	200	5	CSO
81	04	2	17560							N17	E40				B	200	3	CHO
81	04	3	17560						22164	N17	E27	347	(BY)	5	P	230	11	DHO
81	04	4	17560	N17	E13	345	1400	3.0	22164	N18	E14	347	(BY)	5	H	290	8	DSO
81	04	5	17560	N17	E02	343	1400	3.5	22164	N18	W00	347	(BP)	5	H	180	8	DAO
81	04	6	17560	N17	W13	346	1300	3.5	22164	N18	W11	345	(BP)	5	B	190	5	CSO
81	04	7	17560	N17	W26	345	1400	3.5	22164	N18	W23	344	B	5	H	200	2	CSO
81	04	8	17560	N17	W38	344	1100	3.0	22164	N18	W37	345	(BP)	5	H	150	3	CSO
81	04	9	17560	N17	W50	344	1000	3.0	22109	N18	W50	345	(AP)	5	H	250	1	HSX
81	04	10	17560	N17	W66	347	300	3.0	22164	N18	W64	346	(AP)	3	H	210	1	HSX
81	04	11	17560	N18	W78	345	100	2.5	22164	N19	W78	346	(AP)	3	H	130	1	HSX

HALE REGION 17561 CMP DATE 6.5 NEW, IN LOCATION OF 17520

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	31	17561	S17	E76	334	500	3.0	22167	S14	E77	336	(AP)	2	H	10	5	BXO
81	04	1	17561	S17	E65	333	1400	3.5	22167	S16	E67	333	(B)	3	H	50	8	CAO
81	04	1	17561	S17	E65	333	1400	3.5	22171	S19	E63	337	(AP)	3	H	50	8	CAO
81	04	2	17561							S17	E51				B	20	3	BXO
81	04	3	17561						22167	S16	E37	337	(AP)	2				
81	04	4	17561	S17	E25	333	1500	3.5	22167	S15	E26	335	(B)	3	H	10	9	BXO
81	04	5	17561	S17	E11	334	1500	3.0	22183	S23	E10	337	(AP)	2				
81	04	5	17561	S17	E11	334	1500	3.0	22167	S15	E10	337	(AP)	3	H	10	3	AXX
81	04	6	17561	S17	W03	336	1700	3.5	22183	S23	W03	337	(AP)	2	B	10	3	BXO
81	04	7	17561	S17	W14	333	1300	3.0	22191	S19	W06	327	X	2	H	10	2	AXX
81	04	7	17561	S17	W14	333	1300	3.0	22190	S18	W15	336	AP	2	H	10	2	AXX
81	04	8	17561	S16	W29	335	1400	3.0	22190	S14	W30	338	(BP)	3	H	40	8	CAO
81	04	9	17561	S17	W41	335	1000	3.0		S14	W37				L	10	2	AXX
81	04	10	17561	S17	W53	334	800	3.0		S15	W48				P	10	1	AXX
81	04	11	17561	S17	W68	335	300	3.0										

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HALE REGION 17561 (CONT) CMP DATE 6.5 NEW, IN LOCATION OF 17520

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	12	17561	S17	W76	327	200	2.5										
81	04	13	17561	S17	W86	328	200	2.5										

HALE REGION 17562 CMP DATE 6.6

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	03	31	17562	N03	E78	332	200	3.0	22166	N08	E85	328	X	1	H		1	AXX
81	04	1	17562	N06	E74	324	1200	3.5	22166	N06	E70	330	(AP)	3	B	70	2	CSO
81	04	2	17562							N05	E55				B	110	3	CSO
81	04	3	17562						22166	N06	E43	331	(AP)	4	P	180	7	DSO
81	04	4	17562	N05	E26	332	1100	3.0	22166	N05	E30	331	(BY)	5	H	180	9	DSO
81	04	5	17562	N05	E14	331	800	3.0	22166	N05	E15	332	(BY)	5	H	200	14	DSO
81	04	6	17562	N05	W02	335	700	3.0	22166	N05	E03	331	(D)	5	B	110	16	DSI
81	04	7	17562	N05	W15	334	1000	3.0	22166	N05	W11	332	BY	4	H	180	21	DSI
81	04	8	17562	N05	W28	334	1600	3.5	22166	N05	W26	334	(BY)	4	H	160	23	EAI
81	04	9	17562	N04	W41	335	1200	3.5	22166	N05	W40	335	(D)	4	H	320	16	EAO
81	04	10	17562	N04	W55	336	1100	3.5	22166	N05	W54	336	(BY)	4	H	370	13	EKI
81	04	11	17562	N04	W69	336	800	3.0	22166	N05	W70	338	(BY)	4	H	410	9	DAO
81	04	12	17562						22166	N05	W80	336	AF	2	B	100	1	HSX

HALE REGION 17565 CMP DATE 7.0

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	1	17565	N25	E62	336	200	2.0										
81	04	4	17565	N26	E28	330	300	3.0	22177	N27	E29	332	(B)	4	H	10	2	BXO
81	04	5	17565	N27	E15	330	300	2.5	22177	N28	E16	331	(AF)	3	H		1	AXX
81	04	6	17565	N27	E03	330	200	2.5		N28	E10				L		1	AXX
81	04	7	17565	N27	W12	331	100	2.5										

HALE REGION 17566 CMP DATE 7.1 NEW, IN LOCATION OF FRONT PART OF 17511

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	1	17566	N17	E70	328	200	3.0										
81	04	2	17566							N18	E47				L	200	7	CSO
81	04	4	17566	N16	E27	331	1000	3.0		N18	E21				L	180	10	DSO
81	04	5	17566	N16	E18	327	600	3.0	22181	N19	E13	334	(AF)	2				
81	04	5	17566	N16	E18	327	600	3.0	22182	N18	E20	327	(AF)	2				
81	04	6	17566	N16	E04	329	1100	3.0										
81	04	7	17566	N16	W10	329	1000	3.0		N12	W09				B	20	2	BXO
81	04	8	17566	N15	W26	332	1000	3.5		N18	W35				H	150	3	CSO
81	04	9	17566	N15	W37	331	600	3.0		N18	W47				B	200	1	HSX
81	04	10	17566	N15	W52	333	400	2.5		N10	W56				B	320	23	EKI
81	04	11	17566	N17	W62	329	400	2.5	22208	N18	W60	328	(B)	3	H	30	4	CAO

HALE REGION 17567 CMP DATE 7.6 RETURN OF FRONT PART OF 17512 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	2	17567							N09	E71				B	90	1	HSX
81	04	4	17567	N09	E36	322	2100	3.5	22178	N10	E34	327	(AP)	3	H	180	9	DSO
81	04	5	17567	N09	E25	320	1800	3.5		N09	E33				H	110	2	HSX
81	04	6	17567	N09	E10	323	1900	3.5		N07	E11				B	80	7	CSO
81	04	7	17567	N09	W02	321	1900	3.5	22189	N11	W06	327	X	3	H	30	8	CAO
81	04	8	17567	N08	W17	323	2000	3.0		N08	W10				H	140	24	CSO
81	04	9	17567	N08	W29	323	1800	3.0	22189	N17	W25	320	(AF)	2	H	10	2	AXX
81	04	10	17567	N12	W46	327	1200	3.0		N08	W40				B	20	3	CSO

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HALE REGION 17567 (CONT) CMP DATE 7.6 RETURN OF FRONT PART OF 17512 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	11	17567	N11 W58	325	600	3.0	22207	N12 W60	328	(AP)	2	H	30	4	CAO
81	04	12	17567	N11 W66	317	1000	3.0		N10 W61				B	200	3	CSO

HALE REGION 17568 CMP DATE 8.4 RETURN OF REAR PART OF REGION 17512 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	2	17568						N09 E71				B	90	1	HSX
81	04	3	17568					22172	N09 E59	315	(BP)	4	P	100	4	CAO
81	04	4	17568	N08 E46	312	900	3.0	22172	N09 E46	315	(BP)	5	H	120	1	HSX
81	04	5	17568	N08 E35	310	1100	3.5	22172	N08 E33	314	(BP)	5	H	110	2	HSX
81	04	6	17568	N08 E20	313	1000	3.0	22172	N08 E19	315	(BY)	5	B	120	4	CSO
81	04	7	17568	N08 E08	311	600	3.5	22172	N07 E05	316	BY	5	H	140	8	DSO
81	04	8	17568	N08 W08	314	1300	3.5	22172	N08 W10	318	(BY)	6	H	140	24	CSO
81	04	9	17568	N08 W23	317	2000	3.5	22172	N09 W22	317	(Y)	5	H	310	39	EAI
81	04	10	17568	N08 W36	317	3000	3.5	22172	N10 W36	318	(BY)	4	H	260	30	EAO
81	04	11	17568	N10 W51	318	2500	3.5		N09 W50				H	160	14	DSI
81	04	12	17568	N10 W58	309	1100	3.5		N10 W61				B	200	3	CSO
81	04	13	17568	N10 W73	315	1100	3.0		N09 W80				H	60	1	HSX

HALE REGION 17570 CMP DATE 9.1 NEW, IN LOCATION OF REAR PART OF 17513

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	2	17570						N08 E85				M	140	1	HSX
81	04	3	17570					22173	N08 E71	303	(AP)	3	P	130	3	CAO
81	04	4	17570	N09 E57	301	700	3.5	22173	N08 E58	303	(BP)	4	H	180	7	DSO
81	04	5	17570	N08 E45	300	1100	3.0	22173	N08 E46	301	(B)	5	H	170	16	EAI
81	04	6	17570	N08 E31	302	1400	3.5	22173	N07 E32	302	(BY)	5	B	250	25	ESI
81	04	7	17570	N08 E16	303	1200	3.5	22173	N08 E19	302	BY	5	H	370	32	FKO
81	04	8	17570	N08 E04	302	1900	3.5	22173	N08 E05	303	(BY)	5	H	160	46	EAI
81	04	9	17570	N08 W08	302	1800	3.5	22173	N08 W09	304	(BP)	5	H	530	41	EKI
81	04	10	17570	N08 W22	303	1800	3.5	22173	N08 W24	306	(BY)	4	H	500	55	FKI
81	04	11	17570	N08 W35	302	2000	3.0	22173	N08 W40	308	(D)	5	H	400	35	EAI
81	04	12	17570	N10 W47	298	1300	3.5	22173	N08 W52	308	(BP)	4	B	350	6	ESO
81	04	13	17570	N11 W68	310	1200	3.5	22173	N08 W65	307	(B)	4	H	200	10	EAO
81	04	14	17570	N10 W73	301	1000	3.0	22173	N08 W75	304	(B)	3	B		1	AXX

HALE REGION 17577 CMP DATE 9.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	7	17577					22188	N18 E15	306	X	2				
81	04	8	17577	N16 E04	302	100	2.0									
81	04	9	17577	N16 W09	303	100	2.5									
81	04	10	17577	N16 E24	257	200	3.0	22188	N16 W24	306	(B)	3	H	10	3	BXO
81	04	11	17577	N16 W37	304	300	3.0	22188	N16 W37	305	(B)	3	H	20	4	CAO
81	04	12	17577	N17 W54	305	100	3.0	22188	N15 W53	309	(BY)	3	B	30	2	BXO
81	04	13	17577					22188	N15 W64	306	(B)	3	H	10	2	BXO
81	04	14	17577					22188	N15 W78	307	AF	2	B		1	AXX

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HALE REGION 17569 CMP DATE 10.4

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	3	17569						22174	N16	E80	294	AP	1	P	190	3	DAO
81	04	4	17569	N17	E67	291	1000	4.0	22174	N18	E71	290	(B)	4	H	1030	21	FKI
81	04	5	17569	N17	E60	285	3300	4.0	22174	N19	E59	288	(BY)	4	H	1090	35	FKI
81	04	6	17569	N17	E47	286	4700	3.5	22174	N18	E46	288	(D)	5	B	1070	44	FKI
81	04	7	17569	N17	E35	284	5500	3.5	22174	N19	E32	289	(D)	5	H	830	30	EKC
81	04	8	17569	N18	E20	286	6000	3.0	22174	N18	E20	288	(D)	5	H	710	45	FKI
81	04	9	17569	N18	E08	286	6400	3.0	22174	N18	E06	289	(D)	5	H	820	46	FKI
81	04	10	17569	N18	W04	285	6000	3.5	22174	N18	W08	290	(D)	5	H	550	24	FKI
81	04	11	17569	N18	W18	285	4900	3.5	22174	N18	W20	288	(D)	5	H	450	31	FKI
81	04	12	17569	N18	W35	286	3800	3.5	22174	N18	W35	291	(BY)	5	B	500	13	FKI
81	04	13	17569	N18	W45	287	3600	4.0	22174	N18	W48	290	(D)	4	H	450	19	FKI
81	04	14	17569	N18	W57	285	2400	3.0	22174	N18	W60	289	(BP)	4	B	360	10	ESO
81	04	15	17569	N18	W69	281	2000	2.5	22174	N20	W72	287	(BP)	3	B	490	2	DSO

HALE REGION 17575 CMP DATE 10.5

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	8	17575	N11	E25	281	300	3.0										
81	04	9	17575	N10	E11	283	200	3.0	22197	N09	E09	286	(B)	3	H	10	2	AXX
81	04	10	17575	N10	W03	284	200	3.0										
81	04	11	17575	N10	W16	283	200	3.0										
81	04	12	17575	N11	W33	284	100	2.5										
81	04	13	17575	N11	W45	287	100	3.0		N10	W47				B	320	7	DKO
81	04	14	17575	N10	W55	283	100	2.0										

HALE REGION 17571 CMP DATE 10.8 RETURN OF REGION 17514 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	4	17571	S06	E78	280	200	3.0										
81	04	5	17571	S06	E68	277	1000	3.0	22184	S04	E68	279	(AP)	2	P	10	2	BXO
81	04	6	17571	S06	E55	278	1200	3.0	22187	S08	E62	272	(AF)	3	B	10	2	AXX
81	04	7	17571	S06	E43	276	1500	3.5										
81	04	8	17571	S06	E30	276	1600	3.0	22194	S10	E35	273	(AF)	2	L		1	AXX
81	04	8	17571	S06	E30	276	1600	3.0	22193	S05	E28	280	(AP)	2				
81	04	9	17571	S06	E15	279	1600	3.0	22198	S02	E30	265	(AP)	2	L	10	3	AXX
81	04	9	17571	S06	E15	279	1600	3.0	22193	S05	E16	279	(AP)	3	L	10	3	AXX
81	04	10	17571	S06	E02	279	1800	3.0		S08	E04				B	10	5	BXO
81	04	11	17571	S06	W13	280	1400	3.0	22204	S08	W15	283	(AP)	2				
81	04	12	17571	S06	W28	279	1400	3.0	22204	S12	W23	279	(AF)	2	H		1	AXX
81	04	13	17571	S06	W38	280	1500	3.0										
81	04	14	17571	S06	W53	281	1300	3.0	22214	S12	W48	277	(AF)	3				
81	04	15	17571	S06	W66	278	700	2.5										
81	04	16	17571	S07	W79	279	200	2.0	22214	S11	E77	125	AP	1				

HALE REGION 17572 CMP DATE 11.6 NEW, IN LOCATION REAR 17518 AND FRONT 17523

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	5	17572	N09	E64	281	200	2.0										
81	04	6	17572	N11	E58	275	500	2.0										
81	04	7	17572	N13	E49	270	700	2.5										
81	04	8	17572	N15	E40	266	600	3.0										
81	04	9	17572	N15	E26	268	700	2.5										
81	04	10	17572	N15	E13	268	700	3.0										
81	04	11	17572	N14	W02	269	600	3.0		N18	W12				L	450	34	FKO
81	04	12	17572	N15	W19	270	600	3.0		N16	W16				L		2	BXO
81	04	13	17572	N15	W30	272	900	3.0		N19	W26				L		1	AXX
81	04	14	17572	N15	W42	270	700	2.5										
81	04	15	17572	N16	W55	267	300	2.0										
81	04	16	17572	N17	W72	272	200	2.0										

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HALE REGION 17582 CMP DATE 12.9

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	10	17582						22203	S09	E28	254	AP	1				
81	04	11	17582	S08	E15	252	200	2.5	22205	S04	E04	264	X	1				
81	04	11	17582	S08	E15	252	200	2.5	22203	S08	E18	250	(AP)	2	H	10	3	BXO
81	04	12	17582	S08	W01	252	200	2.5	22203	S09	E02	254	AF	1	B	20	2	BXO
81	04	13	17582	S08	W14	256	100	2.5	22203	S09	W12	254	(AF)	2				
81	04	14	17582	S08	W24	252	100	2.0										
81	04	15	17582	S09	W41	253	100	2.0										
81	04	16	17582	S08	W52	252	100	2.0										

HALE REGION 17573 CMP DATE 13.3 NEW, IN LOCATION OF REGION 17524

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	7	17573	N20	E72	247	500	3.5	22192	N21	E73	248	AP	2	H	50	2	CSO
81	04	8	17573	N22	E58	248	600	3.0	22192	N20	E60	248	(AP)	3	H	60	1	HSX
81	04	9	17573	N23	E48	246	800	3.5	22192	N20	E46	249	(AF)	4	H	40	1	HAX
81	04	10	17573	N23	E37	244	900	3.0	22192	N20	E33	249	(AP)	3	H	30	1	HRX
81	04	11	17573	N23	E24	243	600	3.0	22192	N20	E20	248	(AP)	4	H	10	1	HSX
81	04	12	17573	N23	E07	244	700	3.5	22192	N21	E10	246	(BP)	3	H	10	3	AXX
81	04	13	17573	N23	W04	246	700	3.5	22192	N20	W07	249	(AP)	3	B		1	AXX
81	04	14	17573	N23	W15	243	800	3.0		N25	W11				L		2	BXO
81	04	15	17573	N23	W32	244	400	3.0		N21	W27				P		1	AXX
81	04	16	17573	N23	W42	242	400	2.5										
81	04	17	17573	N22	W52	239	400	3.0										

HALE REGION 17574 CMP DATE 13.3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	7	17574	S22	E69	250	200	2.0										
81	04	8	17574	S23	E58	248	200	2.0										
81	04	9	17574	S23	E47	247	200	3.0	22199	S20	E45	250	(AP)	2	H	10	1	AXX
81	04	10	17574	S23	E33	248	200	3.0										
81	04	11	17574	S24	E19	248	100	3.0										
81	04	12	17574	S24	E04	247	100	2.0										

HALE REGION 17578 CMP DATE 14.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	8	17578	S03	E77	229	200	2.5										
81	04	9	17578	S03	E62	232	300	3.0										
81	04	10	17578	S04	E48	233	400	3.0										
81	04	11	17578	S05	E34	233	300	3.0										
81	04	12	17578	S04	E17	234	400	3.0	22211	S04	E22	234	(B)	2				
81	04	13	17578	S04	E05	237	600	3.0	22211	S04	E08	234	(AF)	4	H	20	4	HRX
81	04	14	17578	S04	W06	234	500	3.0	22211	S04	W05	234	(B)	3	B	10	3	BXO
81	04	15	17578	S04	W25	237	400	3.0	22211	S05	W19	234	(B)	3	B	20	1	HSX
81	04	16	17578	S04	W35	235	500	3.0	22211	S05	W35	237	(AP)	2	H		1	AXX
81	04	17	17578	S05	W46	233	300	3.0	22211	S05	W50	239	AP	1	M	30	3	BXO

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HALE REGION 17576 CMP DATE 14.4

				CALCIUM PLAGE DATA				SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	8	17576	N14 E73	233	900	3.0	22195	N14 E74	234	(B)	4	H	450	11	DKI
81	04	9	17576	N15 E58	236	2200	3.5	22195	N14 E60	235	(D)	5	H	1530	12	EKI
81	04	10	17576	N14 E48	233	3400	3.5	22195	N14 E48	234	(D)	5	H	1290	38	FKC
81	04	11	17576	N14 E34	233	4000	4.0	22195	N14 E35	233	(D)	5	H	950	30	EKI
81	04	12	17576	N15 E18	233	3300	4:0	22195	N14 E23	233	(D)	5	H	10	3	AXX
81	04	13	17576	N15 E08	234	4200	4.0	22195	N13 E10	232	(D)	5	H	750	39	EKI
81	04	14	17576	N15 W04	232	4100	3.5	22195	N13 W04	233	(D)	6	B	1000	10	EKI
81	04	15	17576	N15 W21	233	4200	3.5	22195	N13 W16	231	(D)	6	B	1030	37	EKI
81	04	16	17576	N15 W31	231	4000	3.5	22195	N15 W30	232	(D)	5	H	1060	30	EKI
81	04	17	17576	N15 W45	232	3500	3.0	22195	N15 W44	233	BY	5	B	990	39	EKI
81	04	18	17576						N15 W54				B	1280	36	EKI
81	04	19	17576						N15 W68				H	750	9	EHI

HALE REGION 17579 CMP DATE 14.9

				CALCIUM PLAGE DATA				SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	9	17579	N10 E72	222	400	3.0		N08 E78				H	560	5	DKO
81	04	10	17579	N12 E58	223	700	3.0		N09 E65				H	270	6	DAO
81	04	11	17579	N09 E40	227	700	3.0		N10 E48				H	110	5	DAO
81	04	12	17579	N09 E25	226	400	4.0		N11 E22				H	10	3	AXX

HALE REGION i7580 CMP DATE 15.3

				CALCIUM PLAGE DATA				SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	9	17580	S05 E76	218	300	3.0	22201	S06 E78	217	(B)	3	H	10	3	BXO
81	04	10	17580	S06 E64	217	500	3.0	22201	S06 E64	218	(B)	3	H	10	3	BXO
81	04	11	17580	S06 E49	218	800	3.0	22201	S06 E50	218	(B)	2	H	30	3	CAO
81	04	12	17580	S06 E33	218	900	3.5	22201	S05 E33	223	(BP)	2	B	30	3	BXO
81	04	13	17580	S05 E23	219	900	3.5	22201	S05 E23	219	(B)	5	H	80	6	DSO
81	04	14	17580	S05 E08	220	800	3.0	22201	S05 E09	220	(B)	4	B	30	7	CSO
81	04	15	17580	S05 W09	221	800	3.0	22201	S05 W05	220	(B)	4	B	40	1	HSX
81	04	16	17580	S04 W21	221	700	3.0	22201	S05 W17	219	(BP)	4	H	10	1	AXX
81	04	17	17580	S03 W31	218	400	2.0	22201	S04 W37	226	AP	3	B	20	3	AXX
81	04	18	17580						S03 W50				B		1	AXX
81	04	19	17580						S04 W64				H		1	AXX

HALE REGION 17588 CMP DATE 15.3

				CALCIUM PLAGE DATA				SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	13	17588					22212	S31 E21	221	(AP)	2				
81	04	14	17588	S30 E08	220	100	2.0	22212	S31 E09	220	(AP)	4	B		1	AXX
81	04	15	17588	S31 W08	220	100	3.0	22212	S31 W03	218	(B)	2	R	10	2	BXO
81	04	16	17588	S30 W17	217	100	3.0									

HALE REGION 17581 CMP DATE 15.6 NEW, IN LOCATION OF FRONT PART 17528

				CALCIUM PLAGE DATA				SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	9	17581					22200	N08 E79	216	(AP)	2	H	560	5	DKO
81	04	10	17581	N07 E65	216	1400	3.5	22200	N08 E64	218	(BP)	4	H	270	6	DAO
81	04	11	17581	N07 E52	215	1700	3.5	22200	N09 E50	218	(BP)	4	H	110	5	DAO
81	04	12	17581	N07 E34	217	2900	3.5	22200	N09 E35	221	(BY)	3	B	50	7	BXO
81	04	13	17581	N07 E24	218	2800	3.5	22200	N09 E22	220	(BY)	4	H	260	30	EKI
81	04	14	17581	N08 E10	218	2800	3.0	22200	N09 E10	219	(Y)	5	B	250	20	DSO
81	04	15	17581	N08 W04	216	2800	3.5	22200	N09 W03	218	(D)	4	B	250	22	DAI
81	04	16	17581	N09 W16	216	1900	3.0	22200	N10 W17	219	(BY)	4	H	300	22	DKO

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HALE REGION 17581 (CONT) CMP DATE 15.6 NEW, IN LOCATION OF FRONT PART 17528

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
81	04	17	17581	N09	W30	217	1800	3.0	22200	N10	W32	221	BY	4	B	210	24	DAI
81	04	18	17581							N11	W45				B	140	13	CAI
81	04	19	17581							N10	W58				H	140	10	DAI
81	04	20	17581						22200	N11	W71	219	AF	2	H	140	10	DAO
81	04	21	17581						22200	N11	W88	224	X	1	M	280	1	HAX

HALE REGION 17595 CMP DATE 15.6

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
81	04	17	17595	N17	W29	216	100	3.0	22224	N18	W30	219	B	2	B	10	2	BXO
81	04	18	17595							N18	W42				B	90	6	DSO
81	04	19	17595							N18	W55				H	40	5	DAO
81	04	20	17595						22224	N19	W68	216	X	2	H	20	2	CRO

HALE REGION 17584 CMP DATE 16.5 NEW, IN LOCATION OF REAR PART 17528

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
81	04	12	17584	N14	E50	201	500	3.0		N09	E44				L	80	12	CAO
81	04	13	17584	N14	E40	202	600	3.0		N10	E30				L	80	19	CAO
81	04	14	17584	N14	E28	200	600	3.0	22215	N16	E37	192	(B)	2				
81	04	15	17584	N14	E11	201	700	3.0	22221	N13	E09	206	(B)	3	B	60	4	DSO
81	04	16	17584	N14	W04	204	600	3.0	22221	N15	W05	207	(B)	4	H	150	18	DAO
81	04	16	17584	N14	W04	204	600	3.0	22223	N13	E04	198	(AP)	2	B	10	1	AXX
81	04	17	17584	N13	W15	202	600	2.5	22221	N15	W20	209	B	4	B	110	12	DSO
81	04	18	17584							N13	W32				B	80	7	DAI
81	04	19	17584							N15	W45				H	50	3	DAO
81	04	20	17584						22221	N14	W65	213	AP	2	H	40	3	CSO
81	04	21	17584	N10	W72	207	400	2.5	22221	N14	W78	214	(AP)	2	H	10	1	AXX

HALE REGION 17593 CMP DATE 16.6

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
81	04	16	17593	N25	W02	202	200	2.5	22222	N25	W03	205	(B)	3	H	20	7	BXO
81	04	17	17593	N25	W17	204	200	3.0	22222	N25	W17	206	B	3	B	40	13	CRI
81	04	18	17593							N24	W30				B	130	18	CAI
81	04	19	17593							N26	W44				H	60	6	CSO
81	04	20	17593						22222	N25	W58	206	AF	3	H	50	2	HSX
81	04	21	17593	N24	W68	203	300	3.0	22222	N25	W69	205	(AF)	3	H	10	1	AXX

HALE REGION 17587 CMP DATE 17.4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
81	04	12	17587	S08	E61	190	300	3.5	22209	S07	E65	191	(B)	2	H	10	4	BXO
81	04	13	17587	S07	E48	194	600	3.5	22209	S08	E50	192	(BY)	5	H	240	15	DAO
81	04	14	17587	S07	E36	192	1100	3.0	22209	S08	E37	192	(B)	5	B	240	11	DHO
81	04	15	17587	S07	E18	194	1300	3.0	22209	S08	E24	191	(B)	5	B	280	22	DSI
81	04	16	17587	S07	E06	194	1000	2.5	22209	S07	E10	192	(B)	4	H	400	32	DKO
81	04	17	17587	S07	W05	192	700	3.5	22209	S07	W05	194	B	5	B	420	30	DHI
81	04	18	17587							S06	W17				B	560	51	DHI
81	04	19	17587							S07	W30				H	490	32	DKI
81	04	20	17587						22209	S05	W46	194	B	5	H	470	31	DKI
81	04	21	17587	S08	W56	191	2000	3.5	22209	S07	W58	194	(BP)	4	H	240	21	DAO
81	04	22	17587	S07	W67	188	1600	3.5	22209	S07	W75	198	(BP)	4	H	210	4	DAO
81	04	23	17587	S07	W82	191	500	3.5		S04	W88				B	60	1	HSX

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HALE REGION 17583 CMP DATE 17.5

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	11	17583	S20	E77	190	100	2.0	22206	S17	E74	194	(AP)	2				
81	04	12	17583	S19	E60	191	200	2.5		S17	E68				L		1	AXX
81	04	13	17583	S19	E47	195	200	2.5										
81	04	14	17583	S18	E36	192	200	3.0										
81	04	15	17583	S18	E17	195	200	2.0										
81	04	16	17583	S17	E06	194	200	2.0										
81	04	17	17583	S16	W04	191	200	2.5	22225	S25	W16	205	AP	2	B		1	AXX
81	04	17	17583	S16	W04	191	200	2.5	22226	S16	W04	193	B	2	B	10	3	BXO

HALE REGION 17585 CMP DATE 19.0 NEW, IN LOCATION OF 17531

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	12	17585	N21	E75	176	600	3.0	22210	N23	E80	176	AP	2	H	30	1	HRX
81	04	13	17585	N23	E68	174	1100	3.5	22210	N23	E67	175	(AP)	3	H	130	5	CAO
81	04	13	17585	N23	E68	174	1100	3.5	22213	N17	E67	175	(AP)	2				
81	04	14	17585	N22	E56	172	2100	3.5	22210	N23	E54	175	(AP)	4	B	80	3	DSO
81	04	14	17585	N22	E56	172	2100	3.5	22213	N17	E56	173	(B)	3	B	10	3	BXO
81	04	15	17585	N21	E40	172	3000	3.5	22213	N17	E43	172	(B)	4	B	120	7	DAI
81	04	15	17585	N21	E40	172	3000	3.5	22210	N22	E40	175	(BP)	4	B	120	7	DAI
81	04	16	17585	N21	E29	171	5000	3.5	22210	N23	E27	175	(BP)	4	H	70	12	CSO
81	04	16	17585	N21	E29	171	5000	3.5	22213	N18	E30	172	(B)	4	H	70	18	DRO
81	04	17	17585	N21	E16	171	3600	3.5	22210	N23	E11	178	BP	4	B	40	12	DRI
81	04	17	17585	N21	E16	171	3600	3.5	22213	N18	E16	173	B	3	B	90	25	DSI
81	04	18	17585							N18	E09				B	40	10	CSI
81	04	19	17585							N19	W09				H	30	6	CSO
81	04	20	17585						22210	N23	W27	175	B	5	H	40	4	CSO
81	04	21	17585	N20	W36	171	2100	3.5	22228	N18	W34	170	(B)	3	H	140	8	BXO
81	04	21	17585	N20	W36	171	2100	3.5	22210	N24	W42	178	(AP)	4	H	20	2	CSO
81	04	22	17585	N20	W48	169	2000	3.5	22210	N24	W57	180	(AP)	4	H	10	1	HRX
81	04	22	17585	N20	W48	169	2000	3.5	22228	N18	W51	174	(AP)	3	H	20	2	HRX
81	04	23	17585	N23	W58	167	1400	3.5		N18	W54				M		1	AXX
81	04	24	17585	N25	W62	158	400	3.0										

HALE REGION 17586 CMP DATE 19.2

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	12	17586	N38	E68	183	300	3.0										
81	04	13	17586	N38	E57	185	200	3.0										
81	04	14	17586	N38	E46	182	200	3.0										
81	04	15	17586	N38	E30	182	100	2.5										
81	04	16	17586	N38	E21	179	100	2.0										
81	04	17	17586	N38	E08	179	100	2.0										

HALE REGION 17594 CMP DATE 19.9 NEW, IN LOCATION OF SOUTH PART 17533

				CALCIUM PLAGE DATA					SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	17	17594	N11	E23	164	100	2.5		N12	E22				M	20	3	BXO
81	04	18	17594							N11	E12				R	30	3	CRO
81	04	19	17594							N08	E05				H	70	9	DAO
81	04	21	17594	N12	W24	159	900	3.0		N12	W22				H	10	3	BXO
81	04	22	17594	N12	W34	155	600	3.0		N08	W33				H	30	2	DSO
81	04	23	17594	N12	W49	158	500	3.0		N08	W48				H	30	1	HSX
81	04	24	17594	N12	W68	164	100	2.0		N09	W62				H	20	1	HSX

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HALE REGION 17598 CMP DATE 20.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	19	17598						N08 E05				H	70	9	DAO
81	04	20	17598					22227	N10 W08	156	B	4	H	90	6	DAO
81	04	21	17598	N07 W22	157	400	3.0	22227	N08 W20	156	(B)	4	H	40	6	DAO
81	04	22	17598	N07 W35	156	500	3.0	22227	N08 W33	156	(B)	4	H	30	2	DSO
81	04	23	17598	N07 W48	157	500	3.0	22227	N08 W48	158	(AP)	3	H	30	1	HSX
81	04	24	17598	N08 W61	157	600	3.0	22227	N08 W64	161	(AP)	3	H	20	1	HSX
81	04	25	17598	N08 W75	158	400	3.0	22227	N08 W78	161	(AP)	2	H	10	2	AXX

HALE REGION 17590 CMP DATE 20.7 RETURN OF REGION 17535 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	14	17590	N14 E77	151	900	3.0	22216	N14 E79	150	AF	2	B	140	10	CHI
81	04	15	17590	N14 E60	152	1600	3.0	22216	N13 E65	150	(B)	4	B	700	16	DAI
81	04	16	17590	N14 E50	150	1600	3.0	22216	N14 E51	151	(B)	4	H	300	27	DKI
81	04	17	17590	N14 E37	150	2000	3.0	22216	N14 E38	151	B	4	M	200	16	DSO
81	04	18	17590						N12 E25				B	160	26	DSI
81	04	19	17590						N15 E10				H	200	27	EAI
81	04	20	17590					22216	N15 W01	149	BY	5	H	230	43	DAI
81	04	21	17590	N15 W14	149	2100	3.5	22216	N15 W13	149	(D)	5	H	630	43	DKC
81	04	22	17590	N15 W26	147	2600	3.5	22216	N15 W25	148	(D)	5	H	810	28	DKC
81	04	23	17590	N15 W38	147	1800	3.5	22216	N15 W38	148	(D)	5	H	1080	12	DKC
81	04	24	17590	N15 W52	148	2100	3.5	22216	N15 W52	149	(D)	5	H	1170	22	DKC
81	04	25	17590	N15 W66	149	1500	3.5	22216	N15 W66	149	(D)	4	H	1160	13	DKC
81	04	26	17590						N17 W77				H	860	11	DKC

HALE REGION 17589 CMP DATE 21.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	14	17589	N24 E75	153	400	3.0	22217	N23 E80	149	AP	1	R	70	1	HSX
81	04	15	17589	N24 E60	152	1400	3.0	22217	N24 E67	148	(B)	3	B	190	8	DAI
81	04	16	17589	N24 E52	148	1700	3.0	22217	N25 E56	146	(B)	4	H	180	9	DAO
81	04	17	17589	N24 E40	147	1500	3.0	22217	N25 E42	147	BF	4	B	250	13	DAO
81	04	18	17589						N22 E26				B	80	13	CAI
81	04	19	17589						N25 E15				H	170	15	DAO
81	04	20	17589					22217	N25 E04	144	BF	4	H	140	20	DAO
81	04	21	17589	N24 W09	144	2200	3.5	22217	N25 W06	142	(BF)	5	H	150	8	DAO
81	04	22	17589	N25 W22	143	1600	3.5	22217	N25 W20	143	(BF)	5	H	150	13	EAO
81	04	23	17589	N25 W34	143	2000	3.5	22217	N23 W31	141	(BF)	2	H	90	10	DAO
81	04	24	17589	N25 W44	140	1400	3.5	22217	N23 W45	142	(BF)	4	H	60	5	DSO
81	04	25	17589	N26 W60	143	1500	3.5	22217	N24 W58	141	(BF)	4	H	40	4	CAO
81	04	26	17589						N25 W69				H	70	1	HAX
81	04	27	17589	N24 W78	135	100	2.0									

HALE REGION 17591 CMP DATE 21.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	14	17591	S12 E82	146	200	2.5	22218	S11 E80	149	(AP)	2	B	70	1	HSX
81	04	15	17591	S13 E68	144	800	3.0	22218	S11 E69	146	(BP)	4	B	140	1	CSO
81	04	16	17591	S12 E57	143	1100	3.0	22218	S11 E56	146	(AP)	5	H	170	4	HKX
81	04	17	17591	S12 E46	141	1200	3.5	22218	S11 E42	147	BP	4	B	160	5	HSX
81	04	18	17591						S12 E27				B	170	2	HSX
81	04	19	17591						S09 E15				H	150	12	CAO
81	04	21	17591	S10 W09	144	1500	3.0	22218	S10 W08	144	(BP)	5	H	160	12	CSO
81	04	22	17591	S10 W22	143	1600	3.0	22218	S10 W24	147	(BP)	5	H	170	10	CSO
81	04	23	17591	S10 W35	144	1200	3.0	22218	S11 W28	138	(BP)	5	H	80	5	CSO
81	04	24	17591	S09 W48	144	1000	3.0	22218	S11 W51	148	(BP)	4	H	50	1	HSX
81	04	25	17591	S09 W62	145	1100	3.0	22218	S10 W65	148	(BP)	3	H	40	1	HAX
81	04	26	17591						S08 W73				H	70	3	CSO
81	04	27	17591	S07 W76	133	100	2.0		S08 W80				H	10	1	AXX

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HALE REGION 17592 CMP DATE 21.3

YR	MO	DA	HL NO.	CALCIUM PLAGE DATA LAT CMD	L	AREA	INT	SUNSPOT DATA MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	15	17592	S22 E62	150	200	2.0									
81	04	16	17592	S22 E51	149	100	2.0									
81	04	17	17592	S23 E46	141	100	2.0									
81	04	21	17592	S23 W06	141	100	2.0									
81	04	22	17592	S23 W24	145	200	2.5									
81	04	23	17592	S23 W35	144	200	2.0									
81	04	24	17592	S23 W47	143	100	2.0									
81	04	26	17592						S24 W71				P	160	2	HSX

HALE REGION 17599 CMP DATE 22.1 NEW, IN LOCATION OF 17536

YR	MO	DA	HL NO.	CALCIUM PLAGE DATA LAT CMD	L	AREA	INT	SUNSPOT DATA MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	19	17599													
81	04	21	17599	N24 E05	130	200	2.5									
81	04	22	17599	N24 W08	129	300	3.0		N25 W13				M	170	13	DAO
81	04	23	17599	N24 W23	132	300	3.0									
81	04	24	17599	N24 W33	129	100	2.5									
81	04	25	17599	N24 W46	129	100	3.0									
81	04	26	17599													

HALE REGION 17596 CMP DATE 23.0 NEW, IN LOCATION OF 17541

YR	MO	DA	HL NO.	CALCIUM PLAGE DATA LAT CMD	L	AREA	INT	SUNSPOT DATA MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	17	17596	S17 E69	118	100	2.0									
81	04	21	17596	S17 E16	119	300	2.5	22229	S15 E12	124	(AP)	3	H	10	4	BXO
81	04	22	17596	S17 E03	118	300	2.5		S14 E08				M	10	1	AXX
81	04	23	17596	S17 W12	121	100	2.0									
81	04	24	17596	S17 W23	119	100	2.5									
81	04	25	17596	S17 W35	118	200	2.0	22237	S17 W49	132	(B)	3	H	10	3	BXO
81	04	26	17596						S16 W55				L	10	3	BXO
81	04	27	17596	S19 W59	116	100	2.0									

HALE REGION 17597 CMP DATE 23.1

YR	MO	DA	HL NO.	CALCIUM PLAGE DATA LAT CMD	L	AREA	INT	SUNSPOT DATA MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	17	17597	S26 E69	118	100	2.0									
81	04	21	17597	S25 E17	118	400	3.0									
81	04	22	17597	S26 E04	117	400	2.5									
81	04	23	17597	S26 W07	116	200	2.0									
81	04	24	17597	S26 W24	120	200	2.5									
81	04	25	17597	S25 W37	120	100	2.0									

HALE REGION 17606 CMP DATE 23.7

YR	MO	DA	HL NO.	CALCIUM PLAGE DATA LAT CMD	L	AREA	INT	SUNSPOT DATA MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	23	17606	N13 E00	109	100	2.5	22234	N12 E02	108	(B)	3	H	10	2	AXX

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HALE REGION 17601 CMP DATE 24.1 NEW, IN LOCATION OF 17542

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	21	17601	S18	E31	104	400	3.0										
81	04	22	17601	S20	E18	103	300	2.5										
81	04	23	17601	S20	E05	104	400	3.0										
81	04	24	17601	S18	W08	104	100	2.5		S14	W07				H		1	AXX
81	04	25	17601	S18	W22	105	200	3.0		S13	W14				L		1	AXX
81	04	27	17601	S20	W48	105	100	2.0										
81	04	28	17601	S19	W61	104	200	2.0										

HALE REGION 17618 CMP DATE 24.6 NEW, IN LOCATION OF 17563

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	28	17618	N06	W54	97	200	3.0	22247	N05	W53	97	(B)	3	P	40	2	CSO
81	04	29	17618	N06	W68	98	200	3.0	22247	N05	W65	96	(B)	3	H		2	BXO
81	04	30	17618	N06	W78	94	100	3.0		N07	W75				B	10	1	AXX

HALE REGION 17611 CMP DATE 24.7

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	25	17611	N17	W13	96	200	3.0	22239	N17	W12	95	(B)	3	H	30	7	CRO
81	04	26	17611							N18	W25				H	30	5	CRO
81	04	27	17611	N18	W40	97	200	2.0		N18	W38				H	10	3	BXO
81	04	28	17611	N19	W54	97	200	2.0		N19	W44				M		1	AXX

HALE REGION 17605 CMP DATE 24.8

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	22	17605	S16	E26	95	200	2.0	22231	S15	E29	94	(B)	3				
81	04	23	17605	S15	E14	95	100	2.5		S14	E14				B	20	2	BXO

HALE REGION 17602 CMP DATE 26.4 NEW, IN LOCATION OF 17548

				CALCIUM	PLAGE	DATA				SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	21	17602	S07	E65	70	300	2.5										
81	04	22	17602	S08	E51	70	400	3.0	22232	S10	E55	68	(AP)	3				
81	04	23	17602	S08	E37	72	500	3.0										
81	04	24	17602	S10	E24	72	300	2.5										
81	04	25	17602	S10	E10	73	200	2.5										
81	04	27	17602	S11	W17	74	200	2.5										
81	04	28	17602	S10	W28	71	200	3.0	22248	S11	W27	71	(AP)	3				
81	04	29	17602	S08	W44	74	200	3.0										
81	04	30	17602	S08	W55	71	100	2.5										
81	05	1	17602	S11	W70	73	100	2.0										

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HALE REGION 17607 CMP DATE 26.8

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
81	04	23	17607	N12	E42	67	100	2.0										
81	04	24	17607	N09	E27	69	200	3.0		N08	E25				B		1	AXX
81	04	25	17607	N10	E16	67	400	3.0	22240	N11	E17	66	(B)	3	H	40	7	CSO
81	04	26	17607							N13	E07				H	10	3	BXO
81	04	27	17607	N11	W11	68	200	3.0										
81	04	28	17607	N13	W25	68	200	3.0										
81	04	29	17607	N13	W37	67	200	3.0										
81	04	30	17607	N13	W49	65	200	3.0										
81	05	1	17607	N10	W65	68	100	2.5										

HALE REGION 17603 CMP DATE 26.9

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
81	04	19	17603							S42	E81				H		1	AXX
81	04	21	17603	S42	E58	77	700	3.0	22230	S42	E58	78	(AP)	2	H	10	2	BXO
81	04	22	17603	S44	E48	73	700	3.5	22230	S42	E46	77	(B)	2	M	20	3	BXO
81	04	23	17603	S44	E36	73	500	3.5										
81	04	24	17603	S44	E22	74	500	4.5		S43	E28				L	10	2	AXX
81	04	25	17603	S44	E11	72	600	3.5	22230	S42	E10	73	(AP)	2	P	10	1	AXX
81	04	26	17603							S40	E04				L		1	AXX
81	04	27	17603	S45	W10	67	200	2.5		S47	W10				H	10	1	AXX
81	04	28	17603	S44	W24	67	400	3.0		S41	W29				H	10	1	AXX
81	04	29	17603	S44	W36	66	300	3.0										
81	04	30	17603	S44	W47	63	200	3.0										
81	05	1	17603	S44	W58	61	400	2.5										
81	05	2	17603	S44	W62	52	300	1.5										

HALE REGION 17604 CMP DATE 27.1

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
81	04	22	17604	N22	E53	68	400	2.5	22233	N21	E57	66	(AP)	3	H	20	1	HRX
81	04	23	17604	N22	E44	65	500	2.5										
81	04	24	17604	N22	E34	62	200	3.0										
81	04	25	17604	N23	E18	65	300	3.0										
81	04	27	17604	N23	W07	64	200	2.5										
81	04	28	17604	N24	W25	68	100	3.0										
81	04	29	17604	N24	W30	60	100	3.0										
81	04	30	17604	N24	W42	58	100	2.5										

HALE REGION 17600 CMP DATE 27.3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
81	04	21	17600	N18	E71	64	200	2.5										
81	04	22	17600	N17	E59	62	400	3.0		N19	E56				H	20	1	HRX
81	04	23	17600	N17	E48	61	200	2.0										
81	04	24	17600	N17	E36	60	200	2.5										
81	04	25	17600	N16	E22	61	200	2.5										
81	04	26	17600							N13	E07				H	10	3	BXO
81	04	27	17600	N16	W05	62	100	2.0										

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HALE REGION 17614 CMP DATE 27.9

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	25	17614	S08	E30	53	200	3.0	22241	S08	E31	52	(B)	2	P	30	6	BXO
81	04	26	17614							S08	E13				P	20	3	BXO
81	04	27	17614	S06	E03	54	100	2.5										
81	04	28	17614	S05	W10	53	100	3.0										
81	04	29	17614	S05	W24	54	100	3.0										
81	04	30	17614	S06	W37	53	100	3.0										
81	05	1	17614	S07	W50	53	100	2.5										

HALE REGION 17612 CMP DATE 28.4 NEW, IN LOCATION OF 17551

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	25	17612	N16	E36	47	200	2.5										
81	04	26	17612							N18	E29				L	10	4	BXO
81	04	27	17612	N16	E10	47	100	2.5										

HALE REGION 17626 CMP DATE 29.3

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	05	1	17626	S12	W32	35	200	3.0	22254	S11	W30	34	(B)	3				
81	05	2	17626	S11	W45	35	400	3.0	22254	S11	W45	36	(B)	4	H	30	5	CRO
81	05	3	17626	S10	W59	35	300	3.0	22254	S10	W61	38	(B)	3	H	10	2	BXO
81	05	4	17626	S09	W73	36	300	3.0		S11	W65				L	10	3	BXO

HALE REGION 17608 CMP DATE 29.9 NEW, IN LOCATION OF 17553&17554

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	23	17608	N15	E80	29	400	3.5	22235	N14	E79	31	AP	1	H	30	1	HHX
81	04	24	17608	N14	E66	30	1400	3.0	22235	N15	E65	32	B	4	H	100	7	DSO
81	04	25	17608	N14	E54	29	1400	3.5		N15	E55				H	300	16	DAO
81	04	26	17608							N17	E41				H	140	13	CAO
81	04	27	17608	N14	E26	31	2200	3.5	22235	N16	E32	25	(B)	4	H	160	15	CAO
81	04	28	17608	N16	E15	28	2000	3.5	22235	N16	E14	30	(BP)	4	H	80	16	CAO
81	04	29	17608	N16	E02	28	1400	3.5	22235	N16	W01	32	(AP)	4	B	70	5	CAO
81	04	30	17608	N16	W12	28	1300	3.5	22235	N15	W14	31	(AP)	4	B	90	3	CSO
81	05	1	17608	N14	W25	28	1200	3.0	22235	N15	W27	31	(AP)	4				
81	05	2	17608	N15	W38	28	900	3.0	22235	N15	W41	32	(AP)	3	H	60	2	HAX
81	05	3	17608	N15	W52	28	600	3.0	22235	N15	W55	32	(AP)	4	H	60	2	HAX
81	05	4	17608	N15	W62	25	500	3.0		N16	W66				H	120	1	HSX
81	05	5	17608						22235	N16	W82	33	(AP)	2	L	60	1	HSX

HALE REGION 17609 CMP DATE 30.0 NEW, IN LOCATION OF 17555

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	23	17609	N03	E76	33	300	3.0		N01	E76				B	30	1	AXX
81	04	24	17609	N02	E69	27	1800	3.5	22236	N02	E70	27	B	3	H	140	10	EAO
81	04	25	17609	N02	E58	25	3400	3.5	22236	N02	E60	23	(BY)	4	H	390	22	ESI
81	04	26	17609							N02	E46				H	290	33	FSI
81	04	27	17609	N02	E30	27	3900	3.5	22236	N01	E30	27	(BF)	5	H	240	39	DSI
81	04	27	17609	N02	E30	27	3900	3.5	22244	N01	E47	10	(AP)	3				
81	04	28	17609	N05	E18	25	4400	3.5	22236	N03	E19	25	(BF)	5	H	180	42	CSI
81	04	29	17609	N05	E04	26	3600	3.5	22236	N03	E09	22	(BF)	5	H	160	17	ESI
81	04	30	17609	N05	W09	25	3300	3.5	22236	N03	W05	22	(B)	4	H	170	24	CSI
81	05	1	17609	N05	W22	25	4200	3.5	22236	N03	W17	21	(BF)	5				
81	05	2	17609	N05	W35	25	3900	3.5	22236	N03	W33	24	(BF)	4	H	180	10	CSO
81	05	3	17609	N05	W47	23	3500	3.5	22236	N03	W45	22	(AF)	5	H	190	4	CSO

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HALE REGION 17609 (CONT) CMP DATE 30.0 NEW, IN LOCATION OF 17555

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	05	4	17609	N06	W58	21	2600	3.5		N04	W60				H	140	3	CSO
81	05	5	17609						22236	N03	W69	20	(AP)	3	B	70	1	HSX
81	05	6	17609	N04	W72	9	100	2.0	22236	N03	W85	23	AP	2	H	30	1	HSX

HALE REGION 17613 CMP DATE 30.0 NEW, IN LOCATION OF REAR 17552

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	25	17613	N25	E58	25	100	2.0										
81	04	27	17613	N25	E30	27	200	2.5										
81	04	28	17613	N27	E18	25	200	3.0	22249	N27	E18	26	(B)	3	H	20	4	CRO
81	04	29	17613	N25	E03	27	100	3.0	22249	N27	E04	27	(B)	3	H	10	2	BXO
81	04	30	17613	N26	W08	24	100	3.0	22249	N27	W11	28	(AP)	3	H		1	AXX
81	05	1	17613	N23	W23	26	200	3.0	22249	N25	W22	26	(B)	3				
81	05	2	17613	N25	W38	28	100	3.0		N26	W34				R	30	3	CRO
81	05	3	17613	N24	W48	24	200	3.0		N22	W46				B	10	1	AXX
81	05	4	17613	N24	W63	26	200	3.0		N23	W63				P	10	1	AXX

HALE REGION 17610 CMP DATE 30.6 NEW, IN LOCATION OF FRONT 17558

				CALCIUM	PLAGE	DATA					SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	04	24	17610	S10	E78	18	200	1.5										
81	04	25	17610	S08	E67	16	300	2.0										
81	04	27	17610	S13	E40	17	500	3.0	22242	S14	E34	23	(AP)	2	H	10	2	BXO
81	04	27	17610	S13	E40	17	500	3.0	22243	S16	E41	16	(AP)	3	H	10	2	BXO
81	04	28	17610	S13	E26	17	1000	3.0	22243	S14	E26	18	(BP)	3	H	10	5	BXO
81	04	29	17610	S12	E12	18	500	3.0	22243	S15	E13	18	(AP)	3	H	10	2	AXX
81	04	30	17610	S12	W02	18	600	3.0										
81	05	1	17610	S12	W15	18	700	3.0										
81	05	2	17610	S12	W29	19	600	3.0		S12	W36				L	20	9	BXI
81	05	3	17610	S10	W39	15	600	3.0										
81	05	4	17610	S10	W53	16	500	2.5										

NOTE: On these dates, spectroheliograms from other observatories were used (other than Mt. Wilson):

Sacramento Peak Observatory, New Mexico: None
Institute for Astronomy, Hawaii: None

No spectroheliograms from any source were available for April 2, 3, 18-20, and 26, 1981.
No sunspot observations were made at Mt. Wilson Observatory on April 2, 18, 19, and 26, 1981.

Contiguous plages for April 1981: None

DAILY CALCIUM PLAGE INDEX

APRIL 1981

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
81	4	1	36.2	81	4	11	57.5	81	4	21	36.1
81	4	2	*	81	4	12	52.8	81	4	22	32.7
81	4	3	*	81	4	13	54.3	81	4	23	23.1
81	4	4	44.3	81	4	14	45.7	81	4	24	19.1
81	4	5	45.5	81	4	15	48.8	81	4	25	22.0
81	4	6	51.0	81	4	16	48.0	81	4	26	*
81	4	7	51.5	81	4	17	41.1	81	4	27	23.9
81	4	8	57.8	81	4	18	*	81	4	28	30.4
81	4	9	59.1	81	4	19	*	81	4	29	26.3
81	4	10	63.6	81	4	20	*	81	4	30	24.9

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0108	0545	0150	3	5	3		1	2	1	2		*	
01	0748	0818	0757	1-	1				1				0740	17555
01	1016	1100	1022	1	5	2		2	1	1	3		*	
01	1346	1725	1429	2+	5			1	1		8		NF	
01	1402	1550	1417	3	5	4		1		1	5		NF	
01	2340	2357	2347	1-	1				1				2335	17556
02	0008	0018U	0012	1-	1					1			0008	17560
02	0038	0100	0044	1-	3				1	1			0039	17559
02	1102	1300	1112	3	5	4		3	2	1	8		1103	No data
02	1429	1440	1432	1-	3				1	1			*	
02	1640	1808	1706	2	5	1		1	1	1	15		*	
02	1815	1840	1823	1-	3						3		1813	No data
02	1924	2010	1932	1+	3	1			1		14		1923	No data
02	1942	2011	1953	1-	3				1		11		NF	
02	2315	0000	2322	1-	3	1			1		6		NF	
03	0123	0150	0129	1-	3	1			1	1			0115	No data
03	0203	0330	0215	2+	3	1			1	1	4		0202	No data
03	0913	1233	1008	3+	5	3		2	2	1	2		0908	No data
03	1157	1328	1208	1-	3	1		1	1	1	1		*	
03	1235	1303	1239	1-	1				1				*	
03	1642	1730	1701	1-	3	1			1		13		1640	No data
03	1748	1830	1758	1	3	2			1		13		*	
03	1840	1946	1848	1-	3				1		14		NF	
03	2022	2042D	2027	1-	3						6		2022	No data
03	2045	2115	2058	1-	3						2		2043E	No data
03	2319	0138	2347	2	5	2			2		5		2319	No data
04	0225	0308	0238	1-	3	1			1	1	1		*	
04	0500	0642	0505	3+	5	5			2	1	5		0502	No data
04	0800	0828D	0810	3	5	4		2	2	1	6		0802	17567
04	0828E	1109	0840	3	5	2		2	2	2	6		0830	17569
04	1006	1035	1013	1-	3	2				1	1		*	
04	1644	1714	1648	1-	3				1		12		*	
04	2159	2310D	2210	1	5	2			1		9		2159	17569
04	2259	2340U	2312	1-	1	1							2251	17551
04	2312	2354	2319	1-	3				1		6		2312E	17566
05	0020	0248D	0058	1	3	2			1	1	3		0025	17554
05	0250	0400	0303	1-	3	1			1	1	3		0250	17569
05	0735	0746	0737	1-	1						1		0733	17567
05	0938	1000	0942	1	3			1	1	2	1		NF	
05	1342	1535	1423	1-	3				1		2		*	
05	1420E	1548	1420	1-	1					1			1418E	17562
05	1806	1843	1818	1-	3	1			1		13		NF	
05	1853	2007	1910	1-	3	1			1		15		1853	17569
05	2139	2249	2157	1-	3	1			1		9		2136	17562
06	0306	0457	0346	1	3	1			1		1		NF	
06	0457	0611	0523	1+	3				1	1	1		NF	
06	0650	0822D	0714	2+	3	1			1	2			0650	17569
06	0706	0742D	0712	1-	3	1		2		1			0702	17569
06	0745	0828D	0753	1+	3						3		0743E	17569
06	0822E	1041	0858	2+	5	1			1	1	3		*	
06	0848	0910	0858	1	3	2		1		2			*	
06	1507	1601	1525	1-	3				1		3		NF	
06	1919	1953	1922	1-	3				1		4		1910	17557
06	2058	2122	2104	1-	3				1		4		2058	17554
06	2203	2348	2224	1+	5	2			1		12		*	
07	0100	0300	0124	2	3	1			2	1			NF	
07	0114	0310	0129	1-	3	2			1	1	3		0118	17569
07	0403	0645	0446	2+	3				2	1	1		0400	17570
07	0420	0610	0450	2	3	2				1	2		0420	17570
07	0655	0720	0706	1-	3	1			1	2	1		0659	17569
07	0940	0955	0945	1-	3	1				2	1		*	
07	1446	1259	1210	1-	1				1		1		1448	17569
07	1540	1600	1546	1	5	1		1	1	1	12		1540	17573
07	1606	1658	1615	1-	5	1			1	1	11		1606	17570
07	1835	1933	1845	1-	5	1			1		13		1827	17570
07	1955	2001	1956	1-	1						1		1953	17555
07	2014	2025	2016	1-	3						5		2015	17570

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

DAY	UNIVERSAL TIME START	UNIVERSAL TIME END	UNIVERSAL TIME MAX	UNIVERSAL TIME IMP	WIDE SPREAD INDEX	SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
08	0040	0132	0046	1-	3	1			2	1	4		0042	17568
08	0156	0212	0201	1-	3				1	1			0156	17576
08	0221	0250	0230	1-	3				1	1			0222	17576
08	0349	0448	0355	1-	3				2	1			*	
08	0541	0630	0546	1-	3				2	1	2		0541	17561
08	0842	0920	0847	1-	5	2		1	1	2	5		0842	17576
08	1028	1105	1037	1-	3	1			1	1			1028E	17561
08	1233	1240D	1240	1-	5	3		1	2	1	10		1235	17576
08	1248	1300D	1300	1	5	1		1	1	1	9		*	
08	1318	1430	1328	1-	5	1		1	1	1	8		*	
08	1623	1652D	1652	2+	5	2		2	1	1	15		1623	17568
08	1803	1908	1818	1-	3				1		14		1758	17562
08	2034	2103	2041	1-	3	1			1		16		2032	17569
08	2321	0048	2350	1-	5	1			2	1	10		2327	17576
08	2345	0015D	2350	1-	3				2	1	3		2342E	17576
09	0134	0220	0142	1-	3				2	1	1		NF	
09	0318	0344	0323	1-	3				2	1	3		NF	
09	0640	0737	0653	1+	5	1		1	2	2	5		NF	
09	0934	1050	0946	2	5	3		2	1	1	3		*	
09	1228	1320	1250	2	3	3			1	1	6		*	
09	1358	1426D	1426	1-	3				1		2		*	
09	1445	1512	1456	1-	5	1			1	1	13		1445	17568
09	1528	1533D	1533	1-	3				1		10		1529	17568
09	1559	1640	1608	1-	3				1		14		1556	17579
09	1641	1723D	1711	1-	3				1		13		*	
09	1659	1745	1708	1	3				1		2		1653	17579
09	1723	1800	1728	1-	3	1			1		10		1721	17569
09	1815	2007	1839	1-	3				1		13		1814	17568
09	2145	2330	2220	2	5	2			1		14		*	
09	2213	2245	2218	1-	3				1		12		NF	
10	0112	0352	0119	1-	3				2	1			0115E	17568
10	0144E	0241D	0158	1-	3	1			1	1	4		NF	
10	0408	0526D	0428	2	3	1			2	1	5		NF	
10	0528E	0716	0540	2+	3				1	1	4		*	
10	1056	1330	1120	2+	5	4			2	1	5		*	
10	1642	1825	1648	3	5	4		2	1	1	13		1638	17568
10	1718	1744	1722	1-	3						10		1717E	17568
10	1826	1832D	1832	1-	3				1		13		1825	17576
10	1908	2038	1929	1-	3				1		16		1910E	17570
10	2206	2255D	2213	1	5	2			1		11		2207	17570
10	2255E	2333	2258	1-	3				1		4		2258E	17576
10	2349	0016	2354	1-	3	1			1	1			2349	17570
11	0030	0050	0035	1	3	1			2		3		0031	17570
11	0116	0217	0121	1	5	2		1	1	1	4		0117	17579
11	0239	0310	0246	1-	3	1			1	1			NF	
11	0359	0453D	0417	1-	3				1	1			NF	
11	0459	0537D	0506	1	3				1	1			0458	17570
11	0537E	0617	0543	1	5	1		1	1	2	3		0536	17579
11	0825	0857	0830	1-	3				1		3		0829	17569
11	0952	0958D	0958	1-	1			1	1				0949	17570
11	1016	1115	1023	1-	3	2		1	1	1	1		1010	17579
11	1236	1250	1242	1-	5	1		1	1	1	5		1235	17570
11	1304	1315	1306	1-	5	1		1	1	1	11		1304	17576
11	1336	1405	1342	1	5	2		2	1	1	15		1330	17581
11	1442	1449D	1449	1-	1			1	1				1440	17568
11	1517	1605	1526	1	5	1			1	1	17		1507	17579
11	1735	1800D	1743	1-	3				1		12		1739E	17576
11	1750	1826D	1805	1-	3	1			1		6		1748	17568
11	1828	1927	1837	1-	3				1		15		1827	17569
11	1920	1951	1930	1	3						3		1920	17570
11	2001	2057	2006	2	5	2			2		16		2002	17570
11	2134	2202	2142	1-	3				1		7		2138	17570
11	2302	2322	2306	1-	3				1		1		NF	
11	2338	0131D	0005	1+	5	3			2	1	5		2338	17576

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
12	0129	0254	0136	1	5	2			1	1	4		0129	17576
12	0300	0403D	0315	1	5	1			2	1	4		0300	17576
12	0403E	0434	0405	1-	3				1	1	2		0404	17570
12	0446	0511	0449	1-	3	1			1	1			*	
12	0535	0550	0539	1-	5	2		1	2	2	4		NF	
12	0600E	0648	0604	1-	3				1	1	5		0600E	17581
12	0720	0738	0722	1-	1					1			0720	17581
12	0742	0903D	0759	1	5	2		1	2	2	3		0740	17581
12	0815	0835	0822	1-	3	1				1			NF	
12	0859	0940	0912	1-	1	1							0855	17576
12	0903E	1030	0915	1-	3	2			1	1	2		0907E	17576
12	1032	1108	1037	1-	3	3		2	2	1	2		*	
12	1130	1155	1142	1-	1				1				*	
12	1243	1252D	1252	3	5	2		2		1	11		1242	17579
12	1343	1402	1350	1-	3				1		7		1340	17577
12	1431	1500	1438	1	5			1	1	1	10		1434	17581
12	1452	1505	1454	1	3	1		1	1	1	3		1451	17581
12	1607	1620	1609	1	5				1	1	9		1604	17569
12	1730	1745	1733	1-	3			1	1		6		1717	17569
12	1810	1845	1811	1-	5	1			1		9		NF	
12	1947	2007D	2000	1-	5	1			1		11		1947	17573
12	2006	2025	2009	1-	5				2		14		*	
12	2114	2128	2118	1-	3				1		4		2117E	17576
12	2131	0020	2148	2+	5	2			2		14		2132	17576
12	2229	2300	2234	1+	3						3		2226	17569
13	0208	0248D	0216	1	3	1				1			0203	17576
13	0250	0330	0300	1	3			1	1	1			0252	17576
13	0420	0515	0426	1	3	2			1	1			0422E	17576
13	0531	0627	0535	1-	3	1			1	2			0530	17587
13	0638	0656	0641	1-	1					1			0637	17576
13	0720	0852D	0744	1	3			1	1	2			0717	17576
13	0738	0744D	0744	1	3	1				2	1		0735	17576
13	0850	0915	0906	1-	3			1	1	1			0859	17561
13	1007	1115	1026	2	3	2		1	1	1	1		1002	17576
13	1325	1400	1342	1-	5	1		1	1	1	6		1320	17581
13	1603	1637	1611	1-	3			1	1		1		1553	17576
13	1838	1955	1909	1-	3				1		9		1834	17585
13	1858	1955	1909	1	3						2		1859E	17569
13	2352	0018	2355	1-	1				1				2350	17576
14	0356	0543	0412	1	3				2	1			*	
14	0843	0930	0851	1-	5	2		1	1	2	2		0842	17576
14	1015	1045	1023	1-	3	1			1		1		*	
14	1112	1120	1115	1-	3				1	1	1		*	
14	1240	1311	1245	1-	3				1	1	1		1241	17576
14	1650	1738	1658	1-	5	1			1		8		1648	17569
14	1830	1940	1859	1-	3				1		6		1844E	17576
14	2050	2109	2052	1-	3				1		7		2053E	17569
14	2216	2312	2228	1	5	2			1		8		2218	17581
14	2331	0117D	2355	2+	5	2			2	1	6		2330	17581
15	0116E	0150	0123	1	3				1		4		*	
15	0418	0451	0425	1-	3				1		3		0415	17569
15	0450	0606	0512	1	5				2		5		NF	
15	0600	0630	0604	1-	5	2		1	1	1	2		NF	
15	0638	0757	0650	2+	5	4		1	1	1	7		0640E	17569
15	0805	0849	0811	1-	3				1	1	1		0805	17585
15	0918	1005	0930	1	1						1		0925E	17581
15	1204	1225	1206	1-	5	2		1	1	1	3		*	
15	1236	1348	1248	1-	3				1	1	1		1238E	17585
15	1520	1546	1530	1+	5	3		1	1	1	17		1520	17581
15	1708	1815	1714	1-	5	1			1	1	16		1709E	17569
15	1823	1915	1828	1-	5	1			2		17		1822	17569
15	1942	2002	1946	1-	5				2		13		1937E	17581
15	2100	2122	2106	1-	3				1		6		2050	17581
15	2241	2304	2248	1-	3				1		1		2238	17569
15	2330	0025	2345	1-	3				1	1	1		2327	17584
16	0042	0114D	0050	1-	5	2			2	1	4		0040	17581
16	0112E	0234	0126	2	5	3			1	1	4		0112	17581
16	0254	0312	0302	1-	3	1			1				0254	17572
16	0416	0440	0421	1-	1					1			0417E	17581
16	0843	1027	0857	2+	5	4			1	1	4		0840E	17581
16	1823	1900	1830	1-	1				1				18233	17576
16	1945	2000	1950	1-	1				1				1945	17581
16	2012	2051	2019	1-	3				2		6		*	
16	2051	2124	2105	1-	1				1				2051	17576
16	2240	0035	2249	2+	5	3			2		5		2239E	17581

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
17	0323	0522	0354	2	5	2			2	1	3		0325E	17581
17	0340	0440D	0355	1	3	1				1	3		NF	
17	1220	1305	1245	1+	5	2		1	1	1	4		1219E	17590
17	1240	1425D	1303	2	3						3		1238	17589
17	1425	1605	1429	1-	3				1		3		*	
17	1643	1710	1649	1	3						2		1635	17580
17	1720	1818	1730	1-	3				1		3		*	
17	1832	1920	1838	1-	3				1		9		1843E	17584
17	2313	0000	2335	1	3	1			1				NF	
18	0105	0303	0140	2+	3				1	1	2		NF	
18	0130	0440	0138	2	3	3			1	1	2		0131E	17576
18	0303	0038D	0321	1-	3				1	1			*	
18	0516	0601D	0528	1-	3				2	1	4		*	
18	0601E	0708D	0613	3	5	4		2	1	2	5		0602E	17581
18	0708E	0809D	0729	3	5	2		2	1	2	4		NF	
18	0810	0840	0817	1	3	2		2	1	1			0811	No data
18	1050	1204	1056	2+	5	3		3	2	2	5		*	
18	1309	1340	1315	1-	1				1				1304	No data
18	1433	1528	1445	1-	1				1				1427	No data
18	1519	1600	1538	2	3						5		NF	
18	1723	1819	1735	1-	3	1			1		11		NF	
18	1805	1915	1807	1	1	1							1806E	No data
18	2112	2220D	2120	3	5	4			1		12		*	
18	2217E	2319	2227	1-	1	1			1				*	
19	0205	0245	0215	1	3	1					2		0206	No data
19	0320	0345D	0330	1-	3				1	1			0318	No data
19	0341E	0444	0354	1	3				2	1	4		0338	No data
19	0532	0615	0539	1-	3				1	1			0532	No data
19	0646	0803D	0657	3	5	4		2	1	1	2		0647E	No data
19	0803E	0937	0836	2+	5	4		2	1	1	1		NF	
19	1252	1400	1308	1	5	3		2	1	1	4		1251	No data
19	1412	1430	1419	1-	5	1		2	1	1	12		*	
19	1516	1536D	1523	1-	5	2		2	1	1	13		1516	No data
19	1537	1620	1545	1-	5	2		2	1	1	15		1539	No data
19	1708	1903	1719	1	5	3		1	1	1	11		1706	No data
20	0225	0254	0234	1-	3				1	1			0230	No data
20	0326	0430	0341	1	3	2			1	1			0326	No data
20	0704	0744	0711	1-	3	1			1	2	1		0653	No data
20	1100	1237	1115	1+	5	2		2	2	1	3		1058	No data
20	1445	1505	1453	1-	3			1	1		4		1444	No data
20	1614	1725	1624	3	5	5		2		1	14		1612	No data
20	2000	2045	2009	1	3						4		*	
21	0818	0926	0847	1-	3	1		1	1	1			NF	
21	1456	1525	1505	1-	5			1	1	1	9		1455	17590
21	1909	1944	1915	1-	5	1			2		14		*	
22	0054	0120	0100	1-	3				1	1			0054	17590
22	0809	0825	0815	1-	3	1		1	1	2			0806	17590
22	1807	1827D	1827	1	5	1			1		15		NF	
22	1849	1942	1859	1+	5	1			2		13		NF	
22	2003	2034D	2010	1-	5	1			2		14		2002	17590
22	2040	2130	2148	1-	5	1			1		9		*	
22	2257	2348	2304	1-	5	2			1	1	6		2259	17590
23	0229	0319	0242	1-	3				1	1			*	
23	1008	1123	1030	1-	3	1		1	1	1			*	
23	1416	1532	1430	1-	5	1		1	1	1	9		NF	
23	1625	1637D	1637	1-	3				1		4		NF	
23	1650	1803	1658	1-	5	1			1		11		NF	
23	2016	2050	2024	1-	5				1		12		*	
24	0042	0142D	0100	1+	3				2	1	3		0032	17590
24	0120	0344	0150	3	5	2			1	1	4		*	
24	0718	0811	0728	1-	1				1				0716	17590
24	0838	1133	0917	3	5	3		1	1	2			0838	17590
24	1205	1212D	1212	1-	3				1		1		1205E	17590
24	1324	1327D	1327	1-	3				1		2		1324	17590
24	1348	1713	1405	2+	5	4		3	2	1	14		1346	17590
24	1635	1708	1638	1-	1				1				1631E	17603
24	1852	1938	1856	1-	3				1		8		*	
24	2019	2103	2028	1-	5	1			1		12		2019	17609
24	2111	2144	2118	1-	3				1		1		2109	17590
24	2215	2244	2230	1-	1				1				2215	17590
24	2244	2325	2259	1-	3	1			1		4		NF	
24	2327	0046	2340	1-	5	2			2	1	6		*	

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
25	0028	0045	0034	1-	3				1	1			0026E	17590
25	0206	0222	0210	1-	3				1	1			0208	17590
25	0312	0336	0318	1-	1				1				0308	17608
25	0437D	0715D	0524	2+	5				2	2	3		*	
25	0716	0735	0719	1-	3	1		1	1	2			NF	
25	1232	1315	1238	1-	5	1		1	1	1	2		1234	17591
25	1544	1700	1600	3	5	5		1	1	1	12		1541	17590
25	1750	1806	1757	1-	5				1		9		1750	17590
25	1815	1915	1832	1-	5				1		14		1815	17590
25	1946	2014	1952	1-	5	1			1	1	14		1946E	17609
25	2038	2112	2047	1-	3				1		8		NF	
25	2139	2236D	2149	1	5	2			1		12		*	
25	2236E	2306	2245	1-	3				1		6		NF	
25	2306	2345	2315	1-	3				1		5		*	
25	2350	2430	2357	1-	3				1		1		2346E	17609
26	0014	0050D	0021	1-	5	1			2	1	5		0015	17609
26	0050E	0135	0055	1-	3				1	1	3		0051	17609
26	0145	0228	0153	1-	3	1			2	1	4		NF	
26	0309	0342	0317	1-	3	1			1	1	3		0311E	17609
26	0352	0408	0356	1-	3				1	1			0352	No data
26	0609	0630	0623	2	5	2		2	2	1	3		0605	No data
26	0716E	0855	0721	3	5	2		1	1	2	3		0716E	No data
26	1053	1215	1122	3	5	4		2	2	1	3		1057E	No data
26	1140	1540	1220	1	3				1		5		1139	No data
26	1659	1726	1704	3	3				1		12		1659	No data
26	1738	2053	1803	2+	5	4		1	1	1	16		1738	No data
26	1850	1915	1901	1+	1	1							1849	No data
26	1923	2000	1930	1-	5	1			1		16		1923	No data
26	2005	2042	2013	1-	5				2		10		2010	No data
27	0328	0400	0333	1-	3				2	1			0328	17591
27	0746	0915	0808	3	5	3		2	1	1	4		*	
27	1753	1843	1809	1-	3				1		11		1750	17589
27	2252E	0152	2303	3	5	2			1		15		*	
28	0612	0636	0618	1+	3	1		1	1	1	1		NF	
28	1013	1040	1018	1-	3	1		1	1	1			NF	
28	1641	1820	1715	1-	3	1			1		8		NF	
28	2100	0430	2138	2+	3				1		4		*	
28	2108	2233	2129	1-	3				1		7		*	
29	0754	0815	0800	1+	3						3		*	
29	1552	1612	1557	1-	1				1				NF	
29	2130	2200	2144	1	1						1		2131	17620
30	1225	1317	1234	1-	3				1		1		1220	17620

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1981

PERIODS OF NO OBSERVATIONS:

None Reported

STATIONS REPORTING FOR APRIL 1981:

Cleveland, Ohio, USA (28)	SES	Lintong, China (LT)	SPA
Darmstadt, GFR (DA)	SWF	Louisville, Kentucky, USA (A26)	SES
Durham, North Carolina, USA (A54)	SES	Mahwah, New Jersey, USA A5)	SES
Eugene, Oregon, USA (A57)	SES	Maui, Hawaii, USA (MI)	SWF
Eureka, Montana, USA (A55)	SES	Missoula, Montana, USA (A31)	SES, SWF
Edenvale, Transvaal, South Africa (A52)	SES	Panska Ves, Czechoslovakia (PU)	SPA, SEA, SES
Fort Riley, Kansas, USA (A42)	SES	Paterson, New Jersey, USA (A46)	SES
Frenchtown, Montana, USA (A56)	SES	Portage, Michigan, USA (A51)	SES
Glenorchy, Tasmania, Australia (GN)	SWF	Saint Cloud, Minnesota, USA (SC)	SES
Hiraiso, Japan (HI)	SWF	Sao Paulo, Brasil (UM)	SES, SPA
Hobart, Tasmania, Australia (TA)	SEA	Sofia, Bulgaria (SF)	SEA
Houston, Texas, USA (A50)	SES	Somerton, England (SO)	SEA
Huancayo, Peru (HU)	SWF	Tavaris, Florida, USA (A49)	SES
Inubo, Japan (IN)	SPA	Thornwood, New York, USA (A48)	SES
Kasugai, Japan (KA)	SPA	Trenton, New Jersey, USA (NJ)	SES
Lake Hiawatha, New Jersey, USA (32)	SES	Valley Cottage, New York, USA (A41)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Yakima, Washington, USA (A37)	SES

SIDs BY HALE REGION

APRIL 1981

Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17551	1			1																											
17554					1	1																									
17555							1																								
17556	1																														
17557						1																									
17559		1																													
17560		1																													
17561								2					1																		
17562					2			1																							
17566				1																											
17567				1	1																										
17568								2	3	2	2																				
17569				2	2	3	3	1	1	1	2	3	1	2	5																
17570							5			3	6	1																			
17572																1															
17573							1					1																			
17576								6		2	4	6	9	3		2		1													
17577												1																			
17579									2		4	1																			
17580																	1														
17581											1	5	1	2	4	6	1	1													
17584															1		1														
17585													1		2																
17587													1																		
17589																	1										1				
17590																	1				1	4		8	5						
17591																									1		1				
17603																								1							
17608																									1						
17609																								1	2	3					
17620																													1	1	
NO FLARE	2	2	1		2	3	1		4	2	3	3			2		2	4	1		1	2	3	1	3	1		4	1		
NO FLARE PATROL	2	2	3	3	1	3	1	3	5	2		4		3	2	1	2	5	1	1	1	1	3	3	3		2	1	1		
NO DATA		3	7	1														4	9	6						10					
EVENT TOTALS	6	9	11	9	9	11	12	15	15	12	22	25	14	10	16	10	9	15	11	7	3	7	6	14	15	14	4	5	3	1	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01			LEAR				0134.4	0218.0	2				S
			LEAR				0137.7	6143.8	3				II
	0535	1700	DWIN										
	0555	0950	BLEN										
	0530	1512	WEIS				0917.9	0918.1	1				IIIB
			WEIS				1018.6	1018.7	1				IIIB
	1319	2400	HARV				1441	1904	2				IIIN
			WEIS				1449.0	1449.1	1				IIIB
			WEIS				1454.6	1455.7	2				IIIG
			HARV				1455		3				IIIG
	1515	1713	WEIS										
			HARV				1815	1816	3	1815	1816	3	IIIG
			HARV				1835	1837	3				IIIG,U
			HARV				1842	1843	3				IIIG,U
			HARV				1915	1917	3	1915	1917	3	IIIG,V
			HARV				1944		2				IIIG,U
			HARV				1948		2				IIIG
			HARV	2254		2							IIIG
02			LEAR				0247.3	0348.0	1				B
			LEAR				0509.6	0510.3	1				CONT
			LEAR				0510.3	0618.6	1				B
	0537	0824	WEIS				0543.8	0545.7	2				IIIGG
	0927	1248	WEIS				1021.7	1022.8	1				IIIG
	0825	1700	BLEN	1100.2	1110.3	2	1102.6	1108.3	2				IIIGG,U,RS
	0631	1700	DWIN	1101	1110	2							IIIG
			WEIS	1101.2	1108.8	2							IIIGG
			WEIS				1208.4	1208.9	1				IIIG
	1319	2400	HARV	1407	1408	2							IIIG
			HARV				1530		3				IIIG
	1344	1714	WEIS				1530.2	1530.3	1				IIIB
			BLEN				1530.2	1538.3	2				IIIG
			HARV				1535	1536	2				IIIG
			WEIS				1535.0	1535.8	1				IIIG
			HARV				1538	2322	2				IIIN
			BLEN	1658.4	1659.3	1	1658.4	1659.3	1				IIIG
			HARV	1659		2	1659		2				IIIG,U
			HARV	1756	1757	3	1756	1757	3				IIIGG,U
			HARV	1924	1926	3	1926	1927	2				IIIGG
			HARV	2135	2138	2	2133	2138	3	2134	2138	3	IIIGG
			HARV				2143	2154	3				II
03			LEAR				0126.8	0128.3	1				CONT
			LEAR				0132.6	0137.0	1				II
			LEAR				0318.5	0318.8	1				CONT
			LEAR				0515.9	0541.9	2				IV
	0535	1156	WEIS				0552.7	0555.1	1				IIIGG,U
	0550	1705	BLEN	0613.8	0614.3	1	0613.8	0614.3	2				IIIG,U
			WEIS				0613.8	0614.4	1				IIIG
			WEIS				0754.9	0756.0	2				IIIGG
			BLEN	0754.9	0756.0	3	0754.9	0756.0	3				IIIGG
			LEAR				0755.8	0756.0	0				III
			BLEN	0918.5	0936.7	1							DCIM
	0530	1700	DWIN	0919.0	0923.5	2							IIIG
			DWIN	0937	1000	3							IV F
			BLEN	0939.6	1001.0	2	0939.6	1001.0	2				IV,F
			BLEN				0947.4	1014.0	3				II
			WEIS				0947.6	1019.4	3				II HARM
			LEAR				0948.0	1005.0	1				II
			BLEN	0959.3	1007.3	1	0959.3	1007.3	2				IIIGG
			WEIS				1000.4	1003.7	2				IIIGG,DCIM
			WEIS				1000.5	1032.0	2				IV
			DWIN	1001.0	1003.8	2							IIIG
			WEIS				1006.0	1007.4	2				IIIG,DCIM
			DWIN	1006.0	1007.2	2							IIIG
			DWIN	1017	1050	2							IV P
			BLEN				1017.8	1020.9	2				IIIGG,RS
			WEIS				1018.0	1021.4	2				DCIM
			BLEN	1018.0	1041.6	1							DCIM
			BLEN				1043.6	1046.6	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			WEIS				1047.5	1058.0	3				IV
			WEIS				1051.9	1053.2	1				IIIG
			WEIS				1107.4	1108.2	2				IIIG
			BLEN				1117.3	1204.0	3				II
			BLEN	1126.4	1128.7	1							IIIG
			WEIS				1126.6	1127.6	1				IIIG
			DWIN	1126.8	1128.7	2							IIIG
			BLEN	1150.5	1201.6	1	1150.5	1157.3	1				IIIGG
			WEIS				1150.6	1151.7	2				IIIG
			DWIN	1153.0	1156.0	1							IV
			WEIS				1153.8	1154.8	2				IIIG
			SGMR				1159.2	1205.2	1				IV
			DWIN	1201.0	1201.7	2							IIIG
			DWIN	1215	1223	2							IV F
			BLEN	1215.0	1223.0	1							DCIM
	1319	2400	HARV				1442		1				IIIBW
			HARV	1531	1911	2							IN
			HARV				1544	2012	1				IN
			HARV				1555	1556	2				IIIG
			BLEN				1555.3	1601.4	2				IIIG
			HARV	1601		2	1601	1602	3				IIIG
			HARV				1807	1814	3				IIIGG
			HARV				1819	1825	3				IIIGG
			HARV	1838	1846	2	1838	1847	2	1841		2	IIIGG
			HARV	2021	2026	1	2021	2026	3	2022	2023	3	IIIGG,V
			HARV				2025	2038	3				II
			HARV	2041	2045	2	2041	2045	2				IIIGG
			HARV	2315	2316	2							IIIG
			HARV	2326	2332	2	2319	2332	3				IIIGG
04			LEAR				0501.5	0506.2	2				CONT
			LEAR				0508.4	0515.9	2				II
			LEAR				0515.9	0541.9	2				IV
	0550	1705	BLEN	0550.4	0551.2	1							IIIG
	0525	1700	DWIN	0551		1							IIIB
			LEAR				0601.3	0602.1	1				V
			BLEN				0801.1	1236	2				I,DC
			BLEN	0801.5	0812.9	2	0802.0	0814.3	3				IIIGG
			LEAR				0802.2	0821.3	2				IV
	0616	1717	WEIS				0802.2	0814.7	3				IIIGG
			DWIN	0805.5	0809.5	1							IV
			WEIS				0806.8	0820.6	3				II
			BLEN				0806.8	0810.9	3				II
			BLEN	0808.2	0819.4	1							DCIM
			LEAR				0814.5	0821.3	2				II
			BLEN	0829.4	0842.3	1	0835.9	0836.9	2				IIIG
			LEAR				0830.2	0832.0	1				CONT
			WEIS				0830.2	0846.2	3				IIIGG
			WEIS				0838.0	1237.0	1				IN
			DWIN	0838.9	0842.3	2							IIIG
			BLEN	0858.9	0859.1	2							IIIG
			DWIN	0859.0	0859.1	2							IIIG
			BLEN	0954.8	1001.7	2							DCIM
			DWIN	1000	1002.0	2							IIIG
			DWIN	1006.0	1011.2	2							IV
			BLEN	1006.2	1011.7	2							IIIGG,U
			WEIS				1118.1	1123.2	3				IIIGG
			WEIS				1150.2	1150.4	1				IIIB
			WEIS				1154.7	1155.2	1				IIIG
			WEIS				1205.3	1205.7	3				IIIG
			WEIS				1210.1	1210.6	2				IIIG
			WEIS				1223.6	1223.7	1				IIIB
			WEIS				1245.2	1248.7	2				IIIG
			WEIS				1320.8	1322.9	2				IIIG
	1319	2400	HARV				1321	1322	3				IIIG
			HARV				1328	2131	2				IIIN
			WEIS				1334.5	1334.8	2				IIIB
			WEIS				1353.0	1353.3	3				IIIB
			WEIS				1413.2	1413.4	2				IIIG
			WEIS				1422.1	1422.5	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
04			WEIS				1517.8	1518.1	3				IIIG
			HARV				1518		3	1518		2	IIIG
			HARV	1524		1	1524	1531	3	1524	1531	2	IIIG
			WEIS				1527.1	1527.6	2				IIIG
			WEIS				1528.8	1528.9	1				IIIB
			WEIS				1530.7	1531.6	3				IIIG
			WEIS				1534.4	1539.7	3				IIIGG
			HARV	1537	1539	1	1535	1542	3	1539		2	IIIGG
			BLEN	1538.0	1539.3	1	1538.0	1539.3	2				IIIGG
			WEIS				1541.9	1542.3	2				IIIG
			WEIS				1551.8	1551.9	1				IIIB
			WEIS				1604.3	1606.9	3				IIIG
			HARV				1606	1607	3	1606	1607	2	IIIG
			WEIS				1623.9	1624.4	2				IIIG
			HARV	1643		1							IIIB
			BLEN	1643.4	1643.4	1							IIIB
			HARV				1830	1832	2	1830	1832	2	IIIG
			HARV				1900		1	1900		2	IIIG
			HARV				2054		3				IIIG
			HARV				2107	2108	3				IIIB
			HARV				2123		3	2123		1	IIIG
			HARV				2158	2202	2				IIIG
			HARV				2207	2230	3	2207	2215	2	IIIGG
			HARV				2258	2304	2				IIIGG
			HARV	2312	2315	2	2310	2315	3				IIIGG
			LEAR				2314.0	2317.0	1				CONT
			HARV				2358	2400	2				I
05			LEAR				0000.0	0159.4	1				B
			LEAR				0256.2	0257.0	2				V
	0525	1700	DWIN										
	0531	0849	WEIS				0723.3	0723.5	2				IIIB
			LEAR				0723.3	0735.9	1				S
	0548	1705	BLEN				0730.8	0737.4	2				IIIGG
			WEIS				0732.3	0735.3	2				IIIG
			BLEN	0810.0	0812.1	1	0810.0	0812.1	1				IIIG
			WEIS				0810.4	0812.2	2				IIIG
			HARV				1328	2300	1				IN
			BLEN				1433.3	1433.6	1				IIIG
			HARV	1434		1	1433	1434	3				IIIG
	1319	2400	HARV	1508	2400	1	1319	2400	2				IIIN
			HARV	1539	1700	1							IN
			HARV	1723	1725	2	1723	1725	3				IIIG
			HARV				1827	1828	3				IIIG
			HARV	2139	2142	2	2139	2154	2				IIIGG
			HARV				2142	2157	3				II
			HARV	2145	2149	3	2145	2149	3				IV
			HARV				2149	2220	2				IV
06			LEAR				0217.6	0220.2	1				CONT
			LEAR				0353.0	0400.3	1				CONT
	0548	1326	BLEN				0553.5	0553.8	1				IIIG
	0710	1710	DWIN										
			BLEN				0806.9	0814.9	1				IIIG
	1319	1441	HARV										
	1339	1720	WEIS				1447.4	1448.3	1				IIIG
	1339	1720	WEIS				1622.5	1622.7	1				IIIG
07			LEAR				0418.9	0554.5	1				B
			LEAR				0427.5	0502.0	2				II
	0531	1721	WEIS				0552.3	0552.6	3				IIIG
			LEAR				0552.3	0552.6	2				CONT
			WEIS				0554.6	0554.8	2				IIIB
			LEAR				0716.8	1002.0	1				B
			WEIS				0732.3	0737.4	2				IIIG
			WEIS				0905.2	0906.7	3				IIIG
			WEIS				0935.7	0936.3	2				IIIG
			WEIS				1006.2	1008.2	3				IIIG
	0857	1710	BLEN				1006.4	1020.8	2				IIIG
			WEIS				1020.7	1021.2	3				IIIG

SOLAR RADIO EMISSION
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APRIL 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
07			WEIS				1054.9	1055.2	2				IIIB
			BLEN	1117.6	1119.7	1							IIIG
			WEIS				1125.6	1126.0	2				IIIG
			BLEN	1204.2	1204.6	2	1204.2	1204.6	2				IIIG,U
			WEIS				1204.4	1205.3	2				IIIG
			WEIS				1225.6	1234.7	3				IIIG
			WEIS				1336.6	1337.1	2				IIIG
			WEIS				1338.3	1338.6	1				IIIG
			WEIS				1406.6	1406.8	3				IIIB
			WEIS				1414.5	1415.7	1				IIIB
			BLEN				1419.5	1419.8	2				IIIG
			WEIS				1419.6	1420.1	3				IIIG
			WEIS				1430.7	1430.9	1				IIIB
	0635	1710	DWIN	1456.0	1456.2	2							IIIG
			BLEN	1456.2	1456.3	1							IIIG
			WEIS				1459.5	1459.7	1				IIIB
			BLEN				1513.3	1515.2	1				IIIG
			WEIS				1513.4	1513.8	3				IIIG
			WEIS				1515.2	1515.4	2				IIIG
			DWIN	1542.0	1545.3	2							IIIG
			BLEN	1542.2	1545.3	2	1542.2	1543.3	2				IIIGG,U
			WEIS				1542.2	1544.3	1				IIIG
			WEIS				1558.0	1635.0	2				IS
			WEIS				1603.7	1604.2	2				IIIG
			WEIS				1612.7	1612.8	1				IIIB
			WEIS				1617.7	1618.0	1				IIIB
			WEIS				1624.2	1624.7	3				IIIG
			LEAR				2249.2	2251.4	1				CONT
			LEAR				2303.4	2303.6	1				CONT
08			LEAR				0026.4	0033.3	1				CONT
			LEAR				0223.2	0224.3	2				CONT
			LEAR				0241.2	0243.4	2				CONT
			LEAR				0344.0	0344.4	1				V
			LEAR				0421.8	0423.5	2				CONT
	0515	1725	DWIN	0541.0	0552.0	2							IIIG
	0543	1715	BLEN	0543.1	0549.2	3							IIIGG
	0508	0937	WEIS				0547.6	0548.9	1				IIIGG
			WEIS				0552.1	0552.2	2				IIIB
			WEIS				0639.8	0640.9	3				IIIG
			LEAR				0640.1	0641.0	1				CONT
			LEAR				0700.3	0700.6	1				CONT
			WEIS				0700.4	0700.9	3				IIIG
			BLEN	0725.1	0726.0	1							IIIG
			LEAR				0742.2	0743.1	1				CONT
			WEIS				0742.3	0742.6	2				IIIG
			BLEN	0756.0	0757.5	2							IIIG
			WEIS	0756.8	0756.9	2							IIIB
			BLEN	1002.1	1002.3	2							IIIG
			BLEN	1025.0	1033.4	2							IIIG
			DWIN	1025.0	1025.7	2							IIIG
	1112	1129	WEIS										
			BLEN	1129.3	1129.5	1	1129.3	1129.5	1				IIIG
			BLEN	1255.4	1312.1	3	1255.4	1312.1	3				IIIGG
	0515	1725	DWIN	1256.5	1259.3	2							IIIG
	1133	1722	WEIS				1256.7	1259.7	3				IIIGG
			BLEN				1300.5	1305.3	3				II
			WEIS				1300.7	1306.5	3				II HARM
			BLEN	1421.3	1432.5	2							IIIG
			BLEN				1523	1641	2				I,DC
			WEIS				1523.0	1700.0	2				IS
			BLEN	1525.8	1525.8	2							IIIB
			WEIS				1530.4	1531.3	3				IIIG
			WEIS				1531.7	1532.7	2				IIIG
			WEIS				1534.2	1536.8	3				IIIGG
			BLEN	1536.0	1537.1	1							IIIG
			BLEN	1548.5	1551.2	2	1548.5	1551.2	2				IIIG
			WEIS				1549.7	1551.3	2				IIIG
			BLEN	1607.5	1624.3	2							IIIG
			DWIN	1616.1	1617.0	2							IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
08			WEIS				1621.7	1629.6	3				IIIGG
			BLEN				1623.5	1636.3	2				IIIGG
			DWIN	1624.0	1625.5	2							IV
			BLEN	1624.5	1629.7	2							DCIM
			DWIN	1626.7	1725	2							IV
			BLEN	1630	1641	2							I,DC
			BLEN	1635.0	1715 D	2	1635.0	1715 D	2				C
			WEIS				1637.0	1651.0	2				II
			WEIS				1641.0		3				IV
			BLEN	1655.6	1657.1	3	1655.6	1647.1	3				IIIG,RS
			WEIS				1655.6	1657.2	2				IIIG
			WEIS				1712.0	1714.0	2				DCIM
			LEAR				2251.0	0325.1	1				B
09	0543	1715	BLEN	0543 E	1550	2	0543 E	1550	2				I,DC
	0523	1207	WEIS				0544.6	0544.9	1				IIIG
			WEIS				0607.0	1545.0	1				IN
	0628	1145	DWIN										
			WEIS				0831.3	0831.7	2				IIIG
			BLEN	0940.2	0940.6	2							IIIG
			WEIS				1029.7	1030.0	1				IIIG
			WEIS				1124.7	1126.6	3				IIIG
			WEIS				1129.6	1130.4	1				IIIG
			WEIS				1155.0	1158.9	2				IIIG
			BLEN	1303.5	1304.6	2							IIIG
	1255	1724	WEIS				1340.4	1340.7	2				IIIG
			BLEN	1420.2	1424.0	1	1420.2	1422.5	1				DCIM
			BLEN	1600.3	1600.5	2							IIIG
			BLEN	1659.2	1714.2	2	1653.7	1713.5	3				IIIGG,V
			WEIS				1708.9	1713.7	3				IIIGG
10	0521	0731	WEIS				0528	1719	2				IS
	0543	1715	BLEN				0656.5	0658.5	3				IIIG,V
	0737	1725	WEIS				0656.6	0758.3	3				IIIGG
			BLEN	0705	1715 D	2	0705	1715 D	2				I,DC
			LEAR				0712.0	0959.0	1				B
			WEIS				0744.7	0749.6	2				IIIG
	0905	1730	DWIN	1009.1	1009.2	2							IIIG
			BLEN	1009.3	1009.3	2	1009.3	1009.3	2				IIIB
			WEIS				1036.3	1038.7	2				IIIG
			DWIN	1103.0	1135.0	2							IV
			BLEN	1104.3	1116.5	3	1105.2	1114.3	3				IIIGG,RS
			WEIS				1105.9	1110.2	3				IIIGG/V
			BLEN				1110.1	1135.0	3				II
			WEIS				1110.2	1121.0	3				II HARM
			BLEN	1112.5	1158.0	2	1112.5	1158.0	2				C
			WEIS				1112.8	1114.9	2				IIIG
			WEIS				1114.0	1303.0	3				IV P
			DWIN	1137.3	1138.4	2							IIIG
			WEIS				1347.0	1556.0	2				IIIN
			DWIN	1500.0	1500.5	2							IIIG
			BLEN	1500.2	1500.3	2							IIIG
			DWIN	1524.0	1524.3	2							IIIG
			BLEN	1524.2	1524.3	2							IIIG
			DWIN	1642.0	1730	2							IV
			BLEN	1644.2	1714.7	3	1644.2	1713.2	3				IIIGG
			WEIS				1644.3	1650.9	3				IIIGG,RS
			BLEN	1645	1655	2	1645	1655	2				C
			WEIS				1645.0	1659.0	2				IV
			WEIS				1647.2	1650.7	3				
			WEIS				1649.1	1716.0	3				II HARM
			WEIS				1701.6	1702.1	2				IIIG,RS
			WEIS				1711.7	1714.0	2				IIIG
			WEIS				1718.0	1718.4	2				IIIG
11			LEAR				0006.6	0006.8	1				III
			WEIS				0612	1700	1				IN
	0519	1530	WEIS				0712.9	0713.2	1				IIIG
			WEIS				0740.2	0740.5	1				IIIG
	0510	1730	DWIN	1444.0		2							IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
11			WEIS				1448.9	1450.7	3				IIIG
			WEIS				1505.3	1506.2	2				IIIG
	1551	1726	WEIS				1637.1	1637.3	2				U
			WEIS				1702.3	1703.3	2				IIIG
			WEIS				1722.6	1722.8	1				IIIB
	1735	2400	HARV	1741	2400	1							IN
			HARV				1934		3	1934		3	IIIG
			HARV				2350	2400	1				I
12	0510	1730	DWIN	0511.1	0511.6	2							IV
	0517	1728	WEIS				0519	1558	3				IS
			WEIS				0526	1703	3				IIIS
			WEIS				0540.7	0540.9	3				IIIG
			WEIS				0600.8	0601.5	3				IIIG
			WEIS				0631.6	0633.7	3				IIIG
			DWIN	0632.0	0632.8	2							IIIG
			WEIS				1019.3	1019.9	3				IIIG
			WEIS				1120.2	1120.9	3				IIIG
			WEIS				1340.6	1343.2	3				IIIG
			SGMR				1341.2	1341.7	1				CONT
			SGMR				1406.1	1406.2	1				III
			WEIS				1440.8	1446.4	3				IIIGG
			SGMR				1441.6	1445.5	1				CONT
			DWIN	1450.8	1451.0	2							IIIG
			WEIS				1545.4	1545.9	3				IIIG
			SGMR				1646.3	1646.8	1				CONT
			LEAR				2252.0	0909.0	2				IV
13			LEAR				0312.3	0313.5	2				CONT
	0516	1108	WEIS				0519	1728	3				IS,DC
			WEIS				0519	0820	1				CONT
	1111	1729	WEIS				0536	1718	2				IIIS
	0637	1730	DWIN	0815.5	0815.7	1							IIIG
			DWIN	0817.5	0818.3	1							IIIG
			DWIN	0929.5	0932.5	2							IIIG
			DWIN	0934.6	0935.1	2							IIIG
			DWIN	0951.8	0952.6	2							IIIG
			WEIS				0951.9	0952.6	2				IIIG
			DWIN	0957.0	0957.5	2							IIIG
			DWIN	0959.6	0959.7	1							IIIG
			DWIN	1019.5	1019.6	1							IIIG
	0637	1730	DWIN	1059.5	1100.5	2							IIIG
			DWIN	1156.5	1157.0	2							IIIG
			DWIN	1200.0	1201.1	1							IIIG
			WEIS				1201.6	1202.7	2				IIIG
			DWIN	1213.0	1213.3	2							IIIG
			WEIS				1213.3	1214.8	3				IIIG
			SGMR				1213.5	1213.9	2				V
			DWIN	1214.3	1414.8	2							IIIG
			DWIN	1240.0	1240.2	2							IIIG
			DWIN	1242.6	1443.3	1							IIIG
			DWIN	1255.0	1255.1	2							IIIG
			DWIN	1258.7	1300.6	2							IIIG
			DWIN	1309.1	1310.8	3							IIIG
			WEIS				1309.3	1309.8	3				IIIGG
			DWIN	1331.1	1331.4	1							IIIG
			WEIS				1331.4	1331.7	3				IIIG
			WEIS				1347.4	1347.7	3				IIIG
			DWIN	1350.3	1350.6	1							IIIG
			DWIN	1422.0	1422.2	2							IIIG
			WEIS				1431.4	1431.7	3				IIIG
			WEIS				1445.7	1446.5	3				IIIG
			SGMR				1446.0	1446.4	1				CONT
			SGMR				1454.6	1503.5	1				CONT
			WEIS				1502.8	1503.8	3				IIIG
			WEIS				1517.7	1519.4	3				IIIG
14	0514	1730	WEIS				0548	1730	2				IIIN
			WEIS				0550	0559	3				IIIG
			WEIS				0553	1540	2				IN

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			LEAR				0642.7	0645.1	2				CONT
	0505	1730	DWIN	0713.6	0715.0	1							IIIG
			DWIN	0724.4	0724.9	2							IIIG
			DWIN	0832.4	0834.0	1							IIIG
			DWIN	0838.0	0838.3	2							IIIG
			DWIN	0845.3	0846.5	2							IIIG
			WEIS				0846.4	0846.7	3				IIIG
			WEIS				1003.4	1005.6	3				IIIGG
			DWIN	1003.7		2							IIIB
			WEIS				1041.7	1042.7	3				IIIG
			WEIS				1051.4	1051.7	3				IIIG
			WEIS				1053.2	1053.7	3				IIIG
			WEIS				1056.7	1057.1	3				IIIG
			WEIS				1058.3	1058.5	2				IIIG
			WEIS				1151.3	1152.2	3				IIIG
			SGMR				1157.7	1157.9	1				III
			SGMR				1318.6	1319.0	1				CONT
			DWIN	1333.8	1034.2	2							IIIG
			DWIN	1335.4	1335.6	1							IIIG
			DWIN	1341.1		1							IIIB
	1435	1720	BLEN	1435 E	1720 D	2	1435 E	1720 D	2				I,DC,N
			DWIN	1502.5	1504.5	2							IIIG
			BLEN	1502.6	1551.0	3	1502.8	1551.0	2				IIIGG
	0505	1730	DWIN	1507.9	1508.3	2							IIIG
			DWIN	1534.8	1535.6	2							IIIG
			DWIN	1548.0	1548.8	1							IIIG
			SGMR				1620.4	1621.0	1				CONT
			DWIN	1631.7	1638.5	2							IIIGG
			BLEN	1631.8	1719.7	3	1632.2	1633.9					IIIGG
			DWIN	1641.5	1644.7	1							IIIG
			DWIN	1654.5	1655.0	1							IIIG
			DWIN	1658.0	1658.8	1							IIIG
			DWIN	1717.5	1719.6	2							IIIG
			DWIN	1721.2	1722.2	1							IIIG
			SGMR				1722.7	1729.4	1				CONT
			DWIN	1727.1	1727.4	1							IIIG
			LEAR				2344.9	0006.9	1				II
			LEAR				2344.9	0008.1	1				IV
15			WEIS				0527	1620	2				IIIN
	0530	0956	BLEN	0530 E	0956 D	2	0530 E	0956 D	2				I,DC
	0516	1729	WEIS				0538	1518	3				IN
			WEIS				0632.7	0644.9	3				IIIG
			BLEN	0642.5	0704.5	3	0642.5	0702.0	3				IIIGG,RS,V
			LEAR				0642.7	0645.1	2				CONT
			LEAR				0651.0	0955.0	1				B
	0648	1730	DWIN	0657.1	0658.8	2							IIIG
			WEIS				0657.4	0658.3	3				IIIG
			DWIN	0700.7	0702.0	2							IIIG
			WEIS				0701.0	0702.4	3				IIIG
			BLEN	0852.5	0857.3	2	0852.5	0856.5	3				IIIGG,V
			WEIS				0853.0	0853.9	3				IIIG
			LEAR				0853.1	0853.7	2				CONT
			BLEN	0910.4	0911.0	2							IIIG
			BLEN				0922.3	0923.8	2				IIIG
			DWIN	1009.9	1011.0	2							IIIG
			WEIS				1202.5	1205.6	3				IIIG
			SGMR				1202.7	1204.6	2				V
			DWIN	1203.1	1204.9	2							IIIG
			DWIN	1258.9	1259.3	2							IIIG
			DWIN	1302.1		2							IIIB
	1300	2245	HARV	1303	2240	2							IN
			HARV	1354	1355	2	1354	1355	2	1354	1355	2	IIIG,V
			SGMR				1354.4	1355.1	2				V
			WEIS				1355.4	1355.6	3				IIIG
			HARV	1407	2236	2	1408	2205	2				IIIN
			DWIN	1411.2	1411.5	2							IIIG
			HARV	1520	1521	3	1521		3	1521		3	IIIG,V
			WEIS				1520.2	1521.9	3				IIIG
			DWIN	1520.5	1520.7	2							IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15			SGMR				1520.6	1521.9	2				V
			DWIN	1527.3	1528.1	1							IIIG
			HARV							1618	1924	2	IIIN
			DWIN	1623.5	1625.6	2							IIIG
			HARV	1706	1709	3	1708	1709	3	1708	1709	3	IIIG,V
			DWIN	1706.9	1709.0	2							IIIG
			WEIS				1707.4	1708.9	3				IIIG,RS
			HARV	1811		3							IIIG
			HARV				1819	1820	2	1819	1820	2	IIIG
			HARV	1919	1920	2	1919	1920	2	1919	1920	2	IIIG
			HARV				1924		2	1924		2	IIIG
			HARV	2101	2105	3	2105		2				IIIG
			HARV				2122	2124	2	2122	2124	2	IIIGG
			HARV	2137	2230	2							IV
			HARV	2146		3	2146		3				IIIG
			HARV				2241		3	2241		2	IIIG,V
			LEAR				2255.1	0954.0	1				B
16			LEAR				0111.1	0111.7	1				V
			LEAR				0323.1	0323.5	1				CONT
	0514	1306	WEIS				0550	1643	2				IIIN
	0623	1335	DWIN	1013.4	1013.6	1							IIIG
	1018	1720	BLEN	1058	1720 D	2	1058	1720 D	2				I,DC
			BLEN				1426.9	1427.1	2				IIIG
			BLEN				1535.0	1535.3	2				IIIG
	1309	1732	WEIS				1704.2	1704.4	2				IIIG
			BLEN	1704.2	1704.3	3	1704.2	1704.3	3				IIIB
	1431	1755	DWIN	1753.5									IIIB
			LEAR				2255.1	0301.5	1				B
17			LEAR				0111.1	0111.7	1				V
			LEAR				0409.4	0414.0	2				CONT
	0530	1720	BLEN				0605	1720 D	2				I,DC
	0510	1734	WEIS				0624	1721	2				IIIN
			LEAR				0715.5	0715.9	1				CONT
			BLEN	0946.0	1002.7	1							DCIM
	0500	1730	DWIN	1002.1	1002.7	1							IIIG
			WEIS				1004.9	1005.1	3				IIIB
			WEIS				1048.4	1048.7	3				IIIG
			WEIS				1153.8	1156.9	3				IIIG
			BLEN	1154.3	1225.6	2	1154.3	1227.7	2				IIIGG
			WEIS				1227.3	1227.7	3				IIIG
			SGMR				1227.5	1227.8	1				CONT
			BLEN	1231.5	1253.0	2	1231.5	1253.0	2				IV P
			DWIN	1232	1353	1							IV
			WEIS				1236	1252	2				CONT,DCIM
			WEIS				1244.3	1258.0	3				IIIGG
			WEIS				1255	1404	2				IV
			SGMR				1257.5	1308.0	1				CONT
			BLEN	1258.2	1313.3	3	1258.2	1313.3	3				IIIGG
			WEIS				1258.4	1259.3	3				IIIG
			BLEN				1351.0	1419.2	3				IIIGG
			SGMR				1417.4	1417.8	1				V
			WEIS				1417.4	1419.2	3				IIIG
			WEIS				1421	1446	2				II
			BLEN	1423.0	1425.0	2							IIIG,RS
			DWIN	1423.0	1425.0	1							IIIG
			WEIS				1423.3	1424.6	2				RS
			BLEN	1425.0	1427.0	3	1426.0	1429.9	3				II
			BLEN	1538.9	1546.2	3	1538.9	1546.2	3				IIIG,U
			SGMR				1707.2	1707.5	1				III
			SGMR				1853.4	1854.0	1				V
			SGMR				2010.7	2010.9	1				CONT
			LEAR				2357.0	2359.9	1				CONT
18			LEAR				0027.2	0952.0	1				B
			LEAR				0226.7	0227.4	2				V
			LEAR				0303.9	0305.3	2				CONT
			LEAR				0400.1	0400.4	1				CONT
	0508	0824	WEIS				0509	1728	1				IN

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18	0831	1736	WEIS				0510	1658	2				IN
			WEIS				0526.4	0526.7	3				IIIG
	0530	1720	BLEN	0530 E	1720 D	3	0530 E	1720 D	3				I,DC,N
			WEIS				0543	1710	1				IIIN
			BLEN	1050.5	1052.9	1							IIIG
	0500	1730	DWIN	1231.9		1							IIIB
			BLEN	1245.2	1245.7	1							IIIG
	1300	2400	HARV	1321	2147	2							IN
			HARV				1349	2142	2				IIIN
			WEIS				1349.2	1350.3	3				IIIG
			HARV				1441	1832	2				IN
			WEIS				1451.7	1453.2	2				IIIG
			BLEN				1452.0	1504.6	2				IIIG
			WEIS				1504.0	1504.9	2				IIIG
			BLEN	1612.8	1613.3	2							IIIG
			HARV	1657	1658	3							IIIG
			BLEN	1657.2	1657.7	2							IIIG,U
			HARV				1659	1700	3	1659	1700	3	IIIG,V
			SGMR				1659.4	1700.5	1				V
			WEIS				1659.4	1700.3	2				IIIG
			HARV				1704	1708	2	1704	1708	2	IIIG
			SGMR				1705.5	1705.7	1				V
			HARV	1753	1754	3							IIIG
			HARV				1832	2200	2				I
			HARV	2044		2	2044		2				IIIG
			HARV	2228		2	2228		3				IIIG
			LEAR				2339.2	2342.6	2				CONT
			HARV	2342	2343	2	2342	2343	3				IIIG
19			LEAR				0030.7	0033.6	1				CONT
			LEAR				0211.4	0211.6	1				III
			LEAR				0245.4	0310.3	1				S
			LEAR				0342.0	0349.2	2				CONT
			LEAR				0407.1	0515.2	1				S
	0507	1605	WEIS				0508	1710	2				IIIN
			LEAR				0518.9	0618.4	1				S
	1612	1737	WEIS				0539.2	0546.1	3				IIIGG
			LEAR				0540.4	0546.5	2				CONT
	0530	1720	BLEN				0540.6	0545.4	2				IIIG
			LEAR				0633.0	0634.1	1				CONT
			LEAR				0647.8	0652.9	1				CONT
			BLEN				0704.2	0704.6	2				IIIG
			WEIS				0704.3	0704.9	3				IIIG
			LEAR				0722.8	0725.3	2				CONT
			WEIS				0724.2	0725.7	3				IIIG
			BLEN				0724.2	0724.4	2				IIIB,U
			WEIS				0740.7	0744.7	2				IIIGG
			LEAR				0740.8	0746.6	2				CONT
			WEIS				0745.9	0747.6	2				IIIG
			WEIS				0749.9	0751.7	2				IIIG,U
			LEAR				0755.4	0832.2	1				S
			WEIS				0759.4	0803.7	3				IIIGG
			BLEN				0759.8	0804.9	2				IIIG
			WEIS				0820.7	0821.9	3				IIIG
			WEIS				0824.7	0825.9	3				IIIG
			BLEN				0825.0	0847.5	3				IIIGG
			WEIS				0828.2	0828.4	3				IIIG
			WEIS				0831.8	0832.3	3				IIIG
			WEIS				0841.7	0848.3	3				IIIGG
			LEAR				0845.0	0848.7	2				CONT
			WEIS				0942.2	0947.7	3				IIIGG
			LEAR				0944.3	0947.1	2				CONT
			BLEN	0945.3	0946.0	3	0942.5	0950.8	3				IIIGG
			WEIS				0950.6	0951.4	3				IIIG,U
			SGMR				1233.0	1233.2	1				V
			WEIS				1233.1	1233.3	2				IIIG
			WEIS				1256.3	1249.0	3				IIIG
	1300	2345	HARV				1300	2345	2				I
			HARV				1306	2325	2	1431	2051	2	IIIN
			WEIS				1322.9	1323.6	3				IIIG,U

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19			SGMR				1323.0	1323.2	1				V
			HARV				1338	1339	2				IIIG
			HARV				1426	1432	2				IIIG
			BLEN				1431.3	1456.8	2				IIIG
			HARV				1457		2				IIIG
			HARV	1518	1519	2							IIIG
			HARV				1744	1748	3	1744	1748	2	IIIG
			HARV				1831	1835	2	1831	1835	2	IIIG
			HARV				1919	1920	3	1919	1920	3	IIIG
			HARV				2019	2023	2	2019	2023	2	IIIGG
			HARV				2243	2253	3				IIIG
			LEAR				2317.5	2325.6	1				CONT
20			LEAR				0039.9	0040.1	1				CONT
			LEAR				0229.2	0235.0	2				CONT
	0504	1738	WEIS				0508	1600	1				IN
			WEIS				0517	1648	1				IIIN
	0530	1345	BLEN				0530 E	1345 D	2				I,DC
			WEIS				1055.4	1057.9	3				IIIGG
			BLEN	1056.0	1057.6	2	1055.5	1057.6	2				IIIGG
	1300	2340	HARV				1300	2340	2				I
	1435	1720	BLEN				1435 E	1635	1				I,DC
			HARV	1612	1619	2							IIIGG
			BLEN	1612.2	1618.7	2							IIIGG
			HARV				1613	1640	3	1629	1640	2	II
			BLEN				1613.5	1624.8	3				II
			WEIS				1613.7	1643.0	3				II HARM
			SGMR				1629.8	1640.5	1				II
			HARV				1644	1645	2	1729	1645	2	IIIG
			HARV				1648	2251	2	1648	2117	2	IIIN
			HARV				1958		3	1958		3	IIIB
			SGMR				1958.2	1958.3	2				III
			HARV				2012		2	2012		2	IIIG
			HARV				2140		3	2140		2	IIIG
			SGMR				2224.6	2224.8	1				III
			HARV	2225		1	2224	2225	3	2225		2	IIIGG
21			LEAR				0504.0	0504.2	1				III
	0503	1028	WEIS				0603.2	0605.1	1				IIIG
			LEAR				0604.5	0605.3	1				V
	0530	1720	BLEN				0604.6	0604.6	1				IIIB
			WEIS				0637.3	0637.7	1				IIIB
			WEIS				0641.6	0641.8	1				IIIG
			WEIS				0657.0	0657.7	2				IIIG
			LEAR				0657.1	0657.3	1				III
			WEIS				0716.7	0717.0	2				IIIG
			WEIS				0743.5	0743.7	2				DP
			WEIS				0847.0	0847.3	1				IIIG
			WEIS				0905.6	0905.7	1				IIIB
			WEIS				0940.9	0941.0	1				IIIB
			WEIS				0943.8	0943.9	1				IIIB
			WEIS				1006.7	1006.9	1				IIIG
			WEIS				1011.4	1011.6	1				IIIB
	1032	1740	WEIS				1108.4	1108.5	1				IIIB
			WEIS				1111.2	1113.0	1				IIIG
			WEIS				1115.5	1115.7	2				IIIG
			WEIS				1118.5	1118.7	1				IIIB
			WEIS				1124.1	1124.7	2				IIIG
			WEIS				1240.0	1240.6	1				IIIG
			WEIS				1243.9	1244.5	1				IIIG
			WEIS				1251.8	1252.0	1				IIIB
			WEIS				1340.8	1341.3	1				IIIG
			WEIS				1519.8	1519.9	1				IIIB
			WEIS				1627.7	1629.5	1				IIIG
	1300	2400	HARV				1628	1629	2	1628	1629	2	IIIG
			HARV				1752	1756	2	1752	1756	2	IIIG
			HARV				1806	1807	2	1806	1807	2	IIIG
			HARV				2008	2009	2				IIIG
22			LEAR				0112.2	0112.3	1				III

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22			LEAR				0311.2	0312.9	1				CONT
			LEAR				0315.0	0317.2	1				CONT
			LEAR				0441.2	0455.1	1				S
			LEAR				0559.9	0605.1	1				CONT
	0501	1143	WEIS				0601.7	0602.7	1				IIIG
			WEIS				0610.4	0610.5	1				IIIB
			LEAR				0633.5	0638.3	1				CONT
			WEIS				0633.6	0634.1	1				IIIG
			WEIS				0636.7	0638.4	3				IIIGG
	0530	1720	BLEN				0637.3	0638.0	1				IIIG
			WEIS				0738.7	0739.9	2				IIIG
			LEAR				0739.3	0749.3	1				CONT
			WEIS				0742.9	0743.0	2				IIIB
			WEIS				0744.7	0745.9	2				IIIG,U
			WEIS				0747.7	0748.1	2				IIIG
			WEIS				0749.2	0749.7	2				IIIG
			WEIS				0808.6	0808.8	2				IIIG
			WEIS				0859.2	0900.0	2				IIIGG
			WEIS				0902.4	0903.1	2				IIIG
			WEIS				0904.2	0906.6	2				IIIG
			WEIS				0912.4	0912.8	2				IIIG
			WEIS				0952.6	0953.7	2				IIIG
			WEIS				0954.8	0955.0	2				IIIG
			WEIS				1017.4	1017.7	1				IIIG
			WEIS				1023.6	1023.7	2				IIIB
			WEIS				1047.6	1047.8	2				IIIB
			WEIS				1112.9	1113.1	2				IIIB
			WEIS				1116.8	1117.0	2				IIIB
			WEIS				1213.9	1214.1	1				IIIB
			WEIS				1218.6	1219.2	2				IIIG
	1300	2300	HARV				1326	1327	3				IIIB
			BLEN				1326.3	1335.3	3				IIIG
			WEIS				1332.7	1335.4	1				IIIG
			HARV	1335		1	1332	1336	3				IIIGG
			HARV				1337	1620	2				I
			HARV				1444	1445	3	1445		1	IIIG
	1431	1741	WEIS				1444.0	1455.9	2				IIIGG
			WEIS				1514.1	1514.2	1				IIIB
			WEIS				1525.9	1526.1	1				IIIB
			WEIS				1530.4	1530.6	1				IIIG
			WEIS				1700.8	1700.9	2				IIIB
			WEIS				1703.7	1715.4	3				IIIGG
			SGMR				1704.9	1712.8	1				V
			BLEN				1710.5	1715.4	2				IIIG
			HARV	1712	1713		1704	1715	3	1704	1715	3	IIIGG
			HARV				2151	2152	3	2151	2152	3	IIIG
			HARV				2202	2204	2				IIIG
			HARV				2221	2224	3	2222	2223		IIIGG,U
23	0459	0517	WEIS										
	0520	1720	BLEN				0604.3	0604.8	2				IIIG
	0520	1740	WEIS				0604.4	0605.2	3				IIIG
			WEIS				0754.2	0755.6	2				IIIG
			WEIS				0801.5	0801.7	2				IIIG
			BLEN				0801.6	0801.7	2				IIIG
			WEIS				0807.6	0807.8	1				IIIG
			WEIS				0824.4	0826.7	2				IIIG
			WEIS				0910.7	0911.9	1				IIIG
			WEIS				0931.3	0933.6	2				IIIG
			BLEN				0931.3	0931.4	1				IIIG
			WEIS				1002.3	1005.7	3				IIIG
			WEIS				1008.7	1009.2	1				IIIG
			WEIS				1012.4	1012.6	1				IIIG
			WEIS				1014.3	1014.9	1				IIIB
			WEIS				1044.4	1044.8	1				IIIG
			WEIS				1047.1	1050.3	2				IIIG
			WEIS				1108.9	1109.7	1				IIIG
			WEIS				1111.7	1111.9	1				IIIB
			WEIS				1133.1	1133.3	2				IIIG
			BLEN				1155.6	1155.7	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
23			WEIS				1155.7	1155.8	1				IIIG
			WEIS				1202.1	1205.4	1				IIIG
			WEIS				1232.2	1232.9	1				IIIG
			WEIS				1241.1	1241.4	2				IIIG
	1252	1521	DWIN										
	1300	2400	HARV				1304	2120	2				I
			HARV	1310	1726	2							IIIN
			WEIS				1318.3	1318.4	1				IIIB
			HARV	1437	2120	2							IN
			HARV				1534	1848	2				IIIN
			HARV				1617		3				IIIG
			HARV	1625	1632	2	1625	1632	2				IV
			HARV	1741	1746	3	1745		1				IIIGG
			HARV	1823	1824	3	1823	1824	2				IIIG
			HARV	1830	1831	3	1830	1831	3				IIIG
			HARV	1845	1850	3	1848		2				IIIG
			HARV	1910	1930	3	1916	1923	2				IIIGG
			HARV	2015	2025	3	2024	2027	2				IIIGG
			HARV	2058		3	2058		3				IIIG
			HARV	2120	2400	3	2140	2400	3				I
24			LEAR				0058.9	0931.5	1				IV
			LEAR				0247.5	0457.2	1				B
	0457	1234	WEIS				0502.0	0907.0	2				IS
	0520	1720	BLEN				0520 E	0930	3				I,DC
	1241	1744	WEIS				0620	1259	2				IIIN
			LEAR				0706.5	0947.0	1				B
			BLEN	0843.4	0909.0	2	0844.0	0904.0	1				C
	0615	1740	DWIN	0844	0949	2							IV
			WEIS				0851	1040	2				IV
			LEAR				0858.9	0931.5	1				IV
			BLEN	0904.2	0912.6	2							IIIG
			SGMR				1236.8	1239.7	1				CONT
			BLEN				1237.3	1237.5	2				IIIG
			DWIN	1352.5	1353.3	2							IV G
	1300	2350	HARV	1353	1444	3	1353	1444	3	1358	1444	3	IIIGG
			WEIS				1353.3	1356.2	2				IIIG
			WEIS				1354.5	1359.8	3				IIIGGDCIMR
			DWIN	1354.5	1505.5	3							IV
			HARV	1355	1358	3	1355	1429	3				II
			HARV	1356	1505	3	1356	1505	3				IV
			WEIS				1356	1506	3				IV PDCIM
			SGMR				1358.1	1359.4	2				V
			WEIS				1400	1508	3				IV P
			SGMR				1400.1	1515.3	2				IV
			SGMR				1412.0	2001.0	1				B
			SGMR				1428.0	1433.2	1				II
			WEIS				1430.5	1444.3	2				IIIGG
			BLEN	1533.2	1506.4	3	1533.2	1506.8	3				IVF IIIGG
			DWIN	1617.8	1624	2							IV
			WEIS				1643	1651	2				II HARM
			HARV				1643	1651	3				II
			HARV				2219	2320					IN
25	0456	1745	WEIS				0508	1727	1				IN
	0445	1750	DWIN	0530.2	0531.6	2							IIIG
			DWIN	0700.0	0700.5	2							IIIG
			DWIN	0950.1	0952.3	2							IIIG
			WEIS				1142.8	1143.1	1				IIIB
	1300	2350	HARV				1300	2350	2				I
			HARV	1444	1446	2							IIIG
			DWIN	1444.0	1445.8	2							IIIG
			HARV	1718	1719	2							IIIG
			DWIN	1718.0		2							IIIB
			HARV	1727		3							IIIG
			HARV				1831	2242	2	1831	2242	2	IIIN
			HARV	1943	1952	3							IIIGG
			HARV	2345	2346	3							IIIG
26			LEAR				0126.1	0127.5	1				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			LEAR				0202.4	0204.3	1				CONT
			LEAR				0220.8	0226.7	2				CONT
			WEIS				0530	1126	1				IN
	0454	0714	WEIS				0642.7	0643.2	3				IIIG
			LEAR				0642.8	0643.2	1				CONT
			WEIS				0656.4	0657.7	1				IIIG
			LEAR				0657.7	0705.1	1				CONT
			WEIS				0703.3	0704.2	2				IIIG
	0445	1750	DWIN	0716.5	0720.0	2							IIIG
	0727	1656	WEIS				0747.9	0748.2	2				IIIG
			WEIS				0905.9	0908.7	2				IIIG
			WEIS				0958.8	0959.0	1				IIIB
			WEIS	1010.1	1010.3	1							IIIG
			SGMR				1013.5	1747.2	7				I
			WEIS				1046.7	1047.2	1				IIIG
			WEIS				1053.0	1053.2	1				IIIG
			DWIN	1110	1225	2							IV
			WEIS	1116	1217	2							IV
			WEIS				1116.7	1117.3	1				IIIG
			WEIS				1121.4	1122.1	1				IIIG
			WEIS				1123.5	1123.7	2				IIIB
			WEIS				1125	1219	3				IV
			WEIS				1128.4	1128.7	3				IIIG
			WEIS				1131.8	1132.0	2				IIIG
			WEIS				1133.1	1144.3	3				IIIGG
			SGMR				1137.0	1200.0	1				B
			WEIS				1204.8	1213.8	3				IIIG
			WEIS				1422.3	1422.5	2				IIIB
	1300	2355	HARV				1430	1433	2				IIIG
			WEIS				1430.2	1430.7	2				IIIC
			WEIS				1432.6	1433.7	2				IIIG
	1435	1720	BLEN										
			WEIS				1524.3	1524.4	1				IIIB
			HARV	1902	1903	3							IIIG
			HARV	2028	2032	2							IIIG
			HARV				2036	2038	2	2036	2038	3	IIIG
27	0750	1750	DWIN	0752.4	0753.0	2							IIIG
			DWIN	0800.0	0825	3							IV
	0453	1430	WEIS				0803.0	0815.5	2				IV P
			BLEN				0804.0	0812.3	3				IIIG
	0520	1720	BLEN	0804.0	0815.0	3	0804.0	0811.0	2				IV
			WEIS				0807	0830	2				IV P
			LEAR				0807.8	0035.0	1				IV
			WEIS				0812.8	0836.3	2				II RS
			BLEN	0839.5	0849.4	2							DCIM
			DWIN	0839.5	0847	2							IV
			BLEN	0908.7	0921.0	1							DCIM
			BLEN	1143.8	1143.8	2							IIIB
			WEIS				1151.7	1152.0	1				IIIB
	1300	2245	HARV				1305	1307	3				IIIG
			HARV	1410		2							I
	1439	1740	WEIS										
			BLEN	1623.8	1624.0	2	1623.8	1624.0	2				IIIG
			HARV	1624		2	1624		3				IIIG
			HARV	2008	2009	3							IIIG
28			LEAR				0211.3	0212.1	1				CONT
	0440	1750	DWIN										
	0520	1720	BLEN										
	0449	1459	WEIS				0852.9	0844.4	1				IIIG
	1559	1750	WEIS				1652.0	1705.3	2				IIIG
	1300	2245	HARV				1701		2				I
			HARV				1704	2226	2				IIIN
			WEIS				1728.7	1729.7	2				IIIG
			HARV	1729	1730	2	1729	1730	2				IIIG
			WEIS				1740.3	1740.6	1				IIIB
			HARV				2012	2013	2				I
			HARV	2108	2110	1	2109	2127	3				IV
			HARV	2109	2116	1	2109	2135	2				I

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
28			HARV				2115	2119	2				IIIGG
			HARV				2115	2124	3	2124	2138	3	II
			HARV	2209		1	2209		3				IIIG
			HARV				2215	2217	3	2216	2217	3	IIIG,V
			HARV				2235	2236	3				IIIG
29	0447	0839	WEIS				0534.3	0534.5	1				IIIG
			WEIS				0602.7	0603.4	1				IIIG
			LEAR				0721.3	0729.5	1				CONT
			WEIS				0729.1	0729.9	2				IIIG
	0440	1115	DWIN	0729.5	0729.8	1							IIIG
	0520	1720	BLEN	0729.5	0729.8	2	0728.3	0729.8	3				IIIG
	0843	1249	WEIS				0942.2	0942.6	2				IIIG
			WEIS				0944.1	0944.6	1				IIIG
			WEIS				1122.7	1123.7	1				IIIG
	1200	1800	DWIN										
	1300	2320	HARV	1333		3	1333		3				IIIG,U
			HARV	1411	1447	1							IN
			SGMR				1529.7	1531.4	1				CONT
			HARV				1530	1856	2	1530	1356	2	IIIN
	1428	1750	WEIS				1530.4	1530.7	1				IIIB
			WEIS				1532.2	1532.3	1				IIIB
			HARV	1657		1	1657		2				IIIG
			HARV				1907	1913	3	1907	1911	3	IIIG
30			LEAR				0013.3	0013.5	1				V
			LEAR				0308.9	0356.9	2				IV
			LEAR				0333.8	0346.8	1				II
			LEAR				0400.0	0547.0	1				B
	0440	1800	DWIN										
	0446	1536	WEIS				0450.4	0450.5	1				IIIB
			WEIS				0514.5	0515.6	1				IIIG
	0514	1443	BLEN	0515.2	0515.5	1	0514.5	0515.5	1				IIIG
			WEIS				0544.8	0549.9	2				IIIG
			BLEN	0547.5	0549.8	2	0544.8	0549.8	2				IIIGG
	1300	2250	HARV	1336		1	1335	1336	1				IIIG
			HARV	1341	1343	3	1341	1343	3				IIIGG,U
			BLEN				1341.3	1342.2	2				IIIGG
			WEIS				1341.4	1342.1	2				IIIG
			HARV				1554	1559	3				IIIGG
	1545	1753	WEIS				1554.1	1555.3	1				DCIM
			WEIS				1557.5	1558.6	1				DCIM

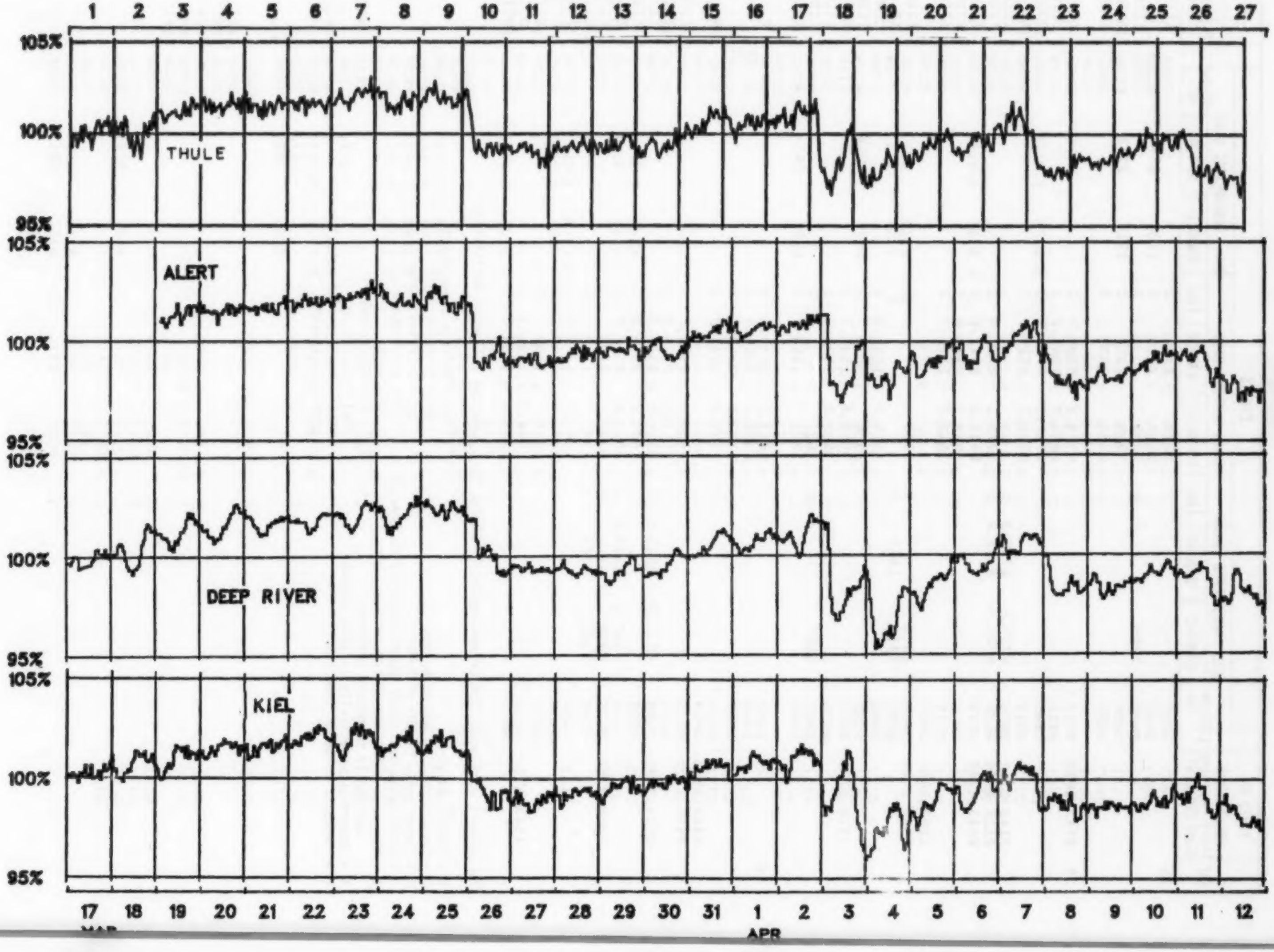
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

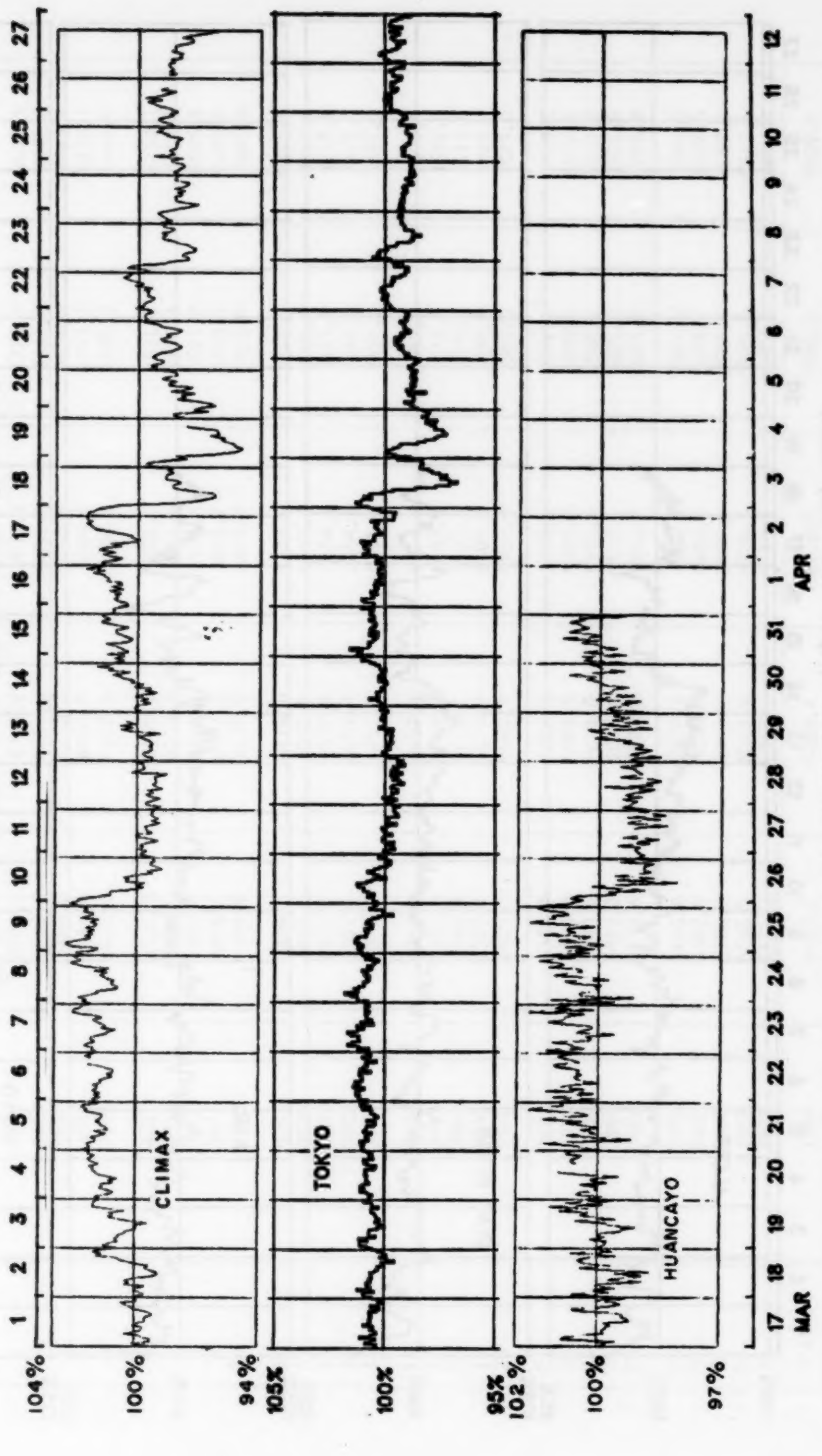
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2018 (March 1981–April 1981)



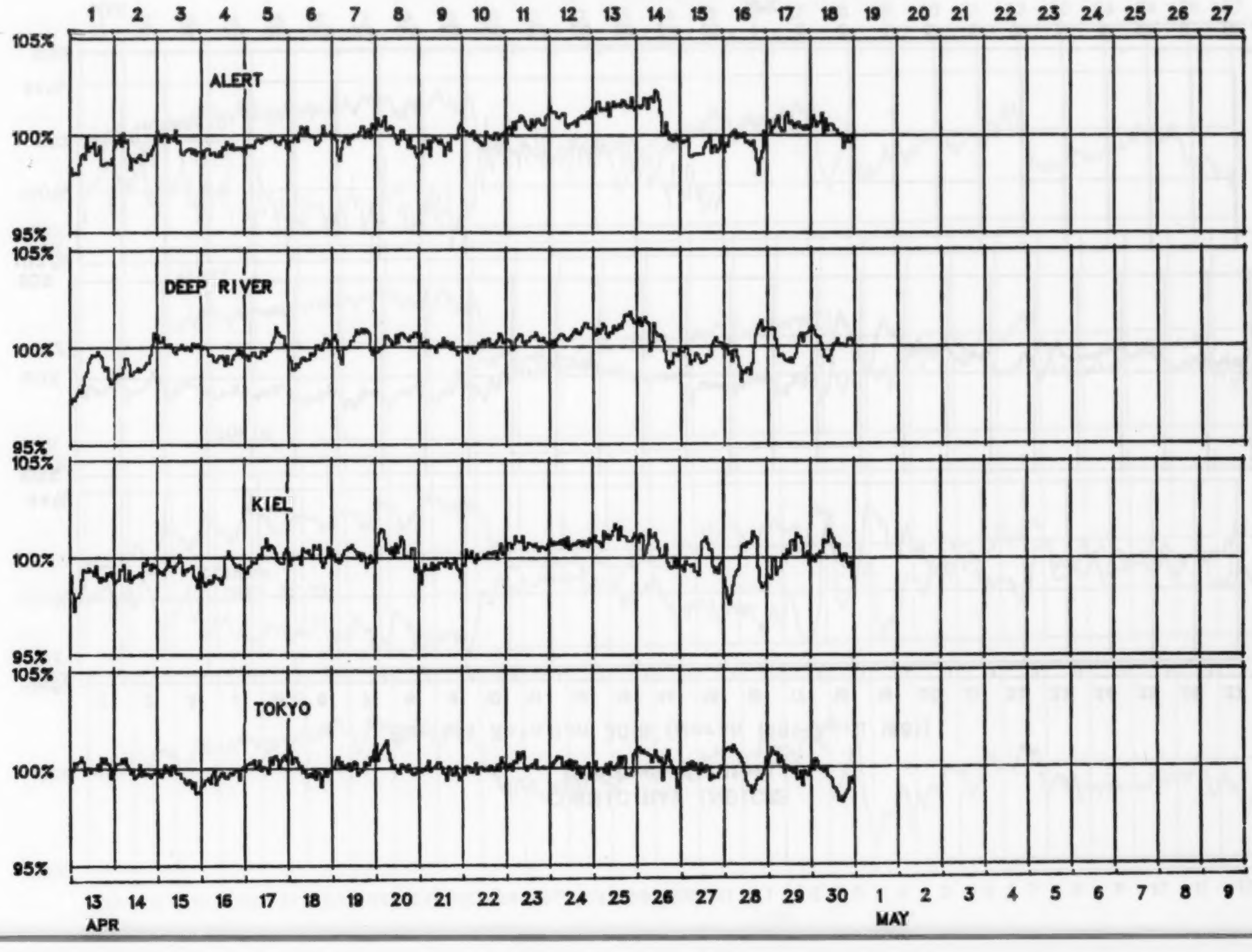
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2018 (March 1981–April 1981)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2019 (April 1981–May 1981)



COSMIC RAY INDICES

(Neutron Monitors)

APRIL 1981

April 1981	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100
1	4045	6605.1	6239.2	5638.3	3723.7	3542.5
2	4059	6620.2	6261.0	5651.3	3731.0	3543.3
3	3981	6489.0	6110.3	5553.9	3634.4	3491.4
4	3946	6448.4	6003.0	5452.5	3559.3	3470.7
5	3985	6502.0	6102.8	5530.4	3595.9	3484.0
6	4001	6526.8	6169.7	5561.6	3631.3	3499.1
7	4035	6572.0	6230.7	5601.5	3670.4	3517.2
8	3952	6442.8	6104.2	5523.6	3621.2	3506.8
9	3961	6446.6	6097.3	5516.7	3610.5	3494.0
10	3992	6499.9	6137.0	5533.2	3615.8	3493.8
11	3991	6499.3	6118.9	5545.8	3631.3	3515.5
12	3929	6407.5	6073.5	5492.2	3601.9	3514.1
13	3881	6324.7	5972.7	5434.1	3537.5	3517.1
14	3902	6351.1	6004.4	5454.3	3548.4	3511.4
15	3907	6374.7	6063.6	5461.5	3551.8	3497.4
16	3889	6353.2	6032.1	5454.5	3552.3	3499.1
17	3907	6381.3	6055.9	5497.5	3576.5	3521.9
18	3922	6400.4	6036.0	5502.2	3554.7	3511.6
19	3948	6397.5	6075.8	5501.5	3584.9	3519.4
20	3964	6405.3	6080.3	5519.9	3584.3	3524.0
21	3921	6378.7	6062.5	5468.3	3578.6	3509.2
22	3925	6400.3	6065.9	5502.4	3588.4	3512.6
23	3949	6440.6	6079.0	5531.3	3596.8	3519.3
24	3955	6462.3	6096.6	5536.1	3601.9	3516.2
25	3964	6498.6	6122.0	5553.7	3616.7	3515.8
26	3950	6466.8	6077.3	5516.2	3587.0	3525.0
27	3892	6362.0	6039.0	5484.6	3579.2	3507.0
28	3893	6376.2	6043.0	5469.1	3581.9	3512.9
29	3932	6438.0	6063.4	5499.5	3595.8	3513.5
30	3918	6421.3	6065.1	5510.1	3576.4	3488.9
MEAN	3950	6443.1	6089.4	5516.6	3601.0	3509.8

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

APRIL 1981

Day		Kp 1	Kp 2	Kp 3	Kp 4	Kp 5	Kp 6	Kp 7	Kp 8	Sum	Ap	Cp	Km 1	Km 2	Km 3	Km 4	Km 5	Km 6	Km 7	Km 8	Am	aa N	aa S	aa M	aa M	
1		4+	4-	3	4	3+	4+	4-	3	29+	23	1.1	4-	3	3-	4-	3	4-	3+	3	Data not available at time of publication.	33	32	31	34	
2	Q7A	1+	2	2	2+	3	3-	3	2+	19-	10	0.6	1	1+	2	2	3-	2-	3-	2		15	20	12	24	
3		2+	3+	1+	2+	4-	3+	3+	3-	22+	14	0.8	2+	3	1+	2-	3-	3	3+	2+		23	16	17	21	
4	Q0A	3-	2+	2-	2-	2+	2	4-	3	19+	11	0.6	3-	2+	2-	2-	2	2-	3	3-		17	15	11	20	
5	Q1	1-	0+	1-	1	1+	1	2-	2-	8+	4	0.1	0+	0+	0+	1-	1-	1	1+	1+		6	4	5	6	CK
6	Q8A	2-	3	4-	3-	2+	1+	1+	2	18	10	0.6	1+	2+	3	2+	2	1+	1+	2-		15	16	19	11	K
7	Q6A	2	2-	2	2	3-	2	3+	2-	17+	9	0.5	2	1+	1+	2-	2+	1+	3-	2		16	13	11	17	K
8	Q9A	3-	1	2+	2+	1	4-	3	3-	19-	11	0.6	3-	1	2+	1+	1	3	3-	2+		25	11	14	22	
9	Q4A	4-	3+	1-	0+	2-	1	1	2-	13+	8	0.4	3+	2	0+	0+	2-	1	1	2-		17	7	17	8	KK
10	Q3A	1	1+	2-	3	2-	2+	2+	2-	15	8	0.4	1-	1-	1+	2	1+	2	2	1+		12	6	7	11	CK
11		1-	2-	3-	3	6+	6	4-	6	30	39	1.4	0+	2-	3-	3	5	5-	3+	5		49	36	18	67	
12	D2	7	7	6-	5	7	6+	6-	6+	50	96	1.9	6+	6-	5-	5-	6-	6-	5-	6-		104	81	78	107	
13	D1	8	8+	8-	6-	6+	6-	6-	5	52+	121	1.9	7	7+	7-	5+	5	4+	5	4+		130	96	157	69	
14		5	4	5	3+	4-	5-	2	1+	29	27	1.2	4	3+	4+	3	3	4	1+	1		44	23	44	24	
15	Q5A	1-	2-	2-	2	3-	3	2+	2	16	8	0.4	1-	1+	1+	2	2+	2+	2+	2+		13	9	8	14	C
16		3	2-	2-	4	4	2+	2+	2	21	13	0.8	3	1+	2-	3+	3	2+	2+	2-		23	18	19	21	
17		2	3+	5-	3	3+	3	4-	3+	26+	19	1.0	1+	3	5-	3	3	3	3+	3+		29	34	35	30	
18		3	2+	1	2	1+	4+	3+	3+	21-	14	0.8	2+	2-	1	2	1-	4-	3-	3		22	16	13	25	
19	D5	6	6	3+	5-	6-	5-	4	2+	37-	45	1.5	5	5	3-	4+	4+	4	3+	2+		48	61	63	44	
20	D4	4	6+	5+	4	5+	5	5	6-	41-	53	1.6	3-	5+	5-	4-	4	4	4+	5		66	57	55	68	
21		4+	4+	5+	5-	5	4+	5	5-	38-	41	1.5	4-	4-	4+	4	5-	3+	4-	4		45	46	47	44	
22		5	5-	5	3+	4+	4-	5-	3+	34	33	1.3	4+	4-	4+	3	4-	3+	4+	3		43	44	41	47	
23		4	5-	5-	4+	4+	4-	4	4	34-	31	1.3	4-	4	4+	4-	3+	3	3+	4		30	42	43	38	
24		2-	4-	3+	4-	5-	4	4	3-	28-	22	1.1	2-	3	3	3+	4-	3+	3+	3-		39	24	22	41	
25		4+	4-	3	3-	3	4-	3	4-	27	19	1.0	3+	3	2+	2	3-	3-	2+	3+		29	20	25	25	
26	D3	3+	3+	6-	6-	7+	5	5+	6-	41+	62	1.7	3-	3	5	5+	6-	4	5-	5-		87	73	59	101	
27		6	5+	5-	5+	5-	5-	3-	4-	37	43	1.5	5	5	5-	5	4	3+	3-	3+		60	42	66	37	
28		2	1+	2-	3-	3-	4	2+	4	21-	13	0.8	2	1	1+	2+	2	4-	2-	4-		23	14	8	29	
29		5-	3+	3-	4	3+	3	3-	2+	26	19	1.0	4+	3-	2+	4-	3+	3-	3	2+		31	37	39	29	
30	Q2A	2	1+	2+	2-	3	1	2	1+	15-	7	0.4	2-	1+	2+	2-	3-	1	2-	1		15	11	12	14	K
Mean											23	0.99										37.2	30.9	34.1		

Day	Kn 1	Kn 2	Kn 3	Kn 4	Kn 5	Kn 6	Kn 7	Kn 8	An	Ks 1	Ks 2	Ks 3	Ks 4	Ks 5	Ks 6	Ks 7	Ks 8	As
1	4-	3-	3-	4-	3	4-	3	3	Data not available at time of publication.	4	3	3-	3-	3-	4-	3+	3	35
2	1-	2-	2+	2+	3-	2+	3	2+		1	1	2-	2	3-	1+	3-	2	14
3	2	3-	1+	2-	3	3	3+	2+		3-	3	2-	2-	2+	3-	3+	3-	22
4	2+	3-	2-	2-	2+	2+	3	3		3	2	2-	2-	2-	1+	3-	3-	17
5	0	0+	0+	1+	1+	1	2-	2-		1-	0+	0+	0+	0+	1-	1	1	4
6	1+	2+	3	2+	2+	2-	1+	2+		2-	3-	3-	2	2	1	1	1+	14
7	2-	1+	2-	2	2+	2-	3	2+		2	1+	1	1+	2+	1	2	2-	11
8	2+	1-	2+	2-	1+	3+	3	3-		3-	1	2+	1+	1-	3-	3-	2+	16
9	3	2	1-	0+	2-	2-	1+	2+		3+	2+	0+	0	2-	0+	0+	1+	10
10	1-	1	1+	3-	2-	2+	2+	2-		0+	0	1	2-	1	1+	2	1	8
11	0+	2-	3-	3	6-	5	4-	5		0+	2-	2+	3	4+	4+	3+	5-	39
12	6	6-	5	4+	6	6-	5	6-		6+	6	4+	5	5+	5+	5-	5+	115
13	7+	8-	7	5+	5	4+	5	5-		7	7+	6+	5+	5	4+	5-	4	144
14	4	3+	5-	3+	4-	4+	1+	1+		4	4-	4	3	3-	3+	1+	1-	33
15	1	1	1+	2+	3-	2+	2+	3-		0+	1+	1+	2	2	2	2+	2-	12
16	3	1+	2-	4-	3+	2+	3-	2		3	1+	2	3+	3-	2	2	1+	20
17	1+	3	5-	3	3	3	4-	3		2-	3	5-	3	3-	3	3	3+	34
18	3-	1+	1	2+	1-	4	3+	3+		2	2-	1	2	0+	3	2+	3	15
19	5	4+	3-	4+	5-	4	3	2+		5	5+	2+	4	4+	4	4-	2	57
20	3	5+	5-	4	4+	4	4	5-		3-	5	4+	4-	4	4+	5-	5	64
21	4-	4-	5-	4	5-	3+	4-	4-		4-	4-	4	4	4+	3+	4	4+	52
22	4	4	4+	3	3+	3	4+	3		5-	4-	4+	3-	4-	3+	4+	3-	48
23	4-	4	4	4	4-	3	4-	4-		4-	4-	5-	3+	3+	3-	3+	4	46
24	2-	3	3	3+	4	4-	3+	2+		2	3+	3+	3+	3+	3+	3+	3-	32
25	4-	3	3-	2	3-	3	2+	3+		3+	3	2+	2	2+	2+	2	3	23
26	3-	3+	5+	5+	6	4+	4+	5-		3-	3	5-	5	5	4	5-	5	69
27	5	5	5-	5+	4+	4-	3-	3		5	5-	4	5-	4-	3	3-	4-	59
26	2-	1	2-	3-	2+	4-	2	4-		2+	1-	1	2+	1+	3+	2-	4-	19
29	4	3-	2+	4	3+	3-	3-	2		5-	3	2+	3+	3	3	3	2+	33
30	2-	2-	2+	2-	3	1	2	1+		2-	1	2+	1+	2	1-	1+	1-	10
Mean																		35.9

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M	M
21 Feb 1979			66	102
10 Mar			54	101
25 Apr	109		27	148
26 Apr			103	15
13 Aug			53	108
20 Aug			33	100
29 Aug			59	111
18 Sep			100	63
25 Jul 1980			13	100
19 Dec	118	123	63	178
06 Feb 1981			24	116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

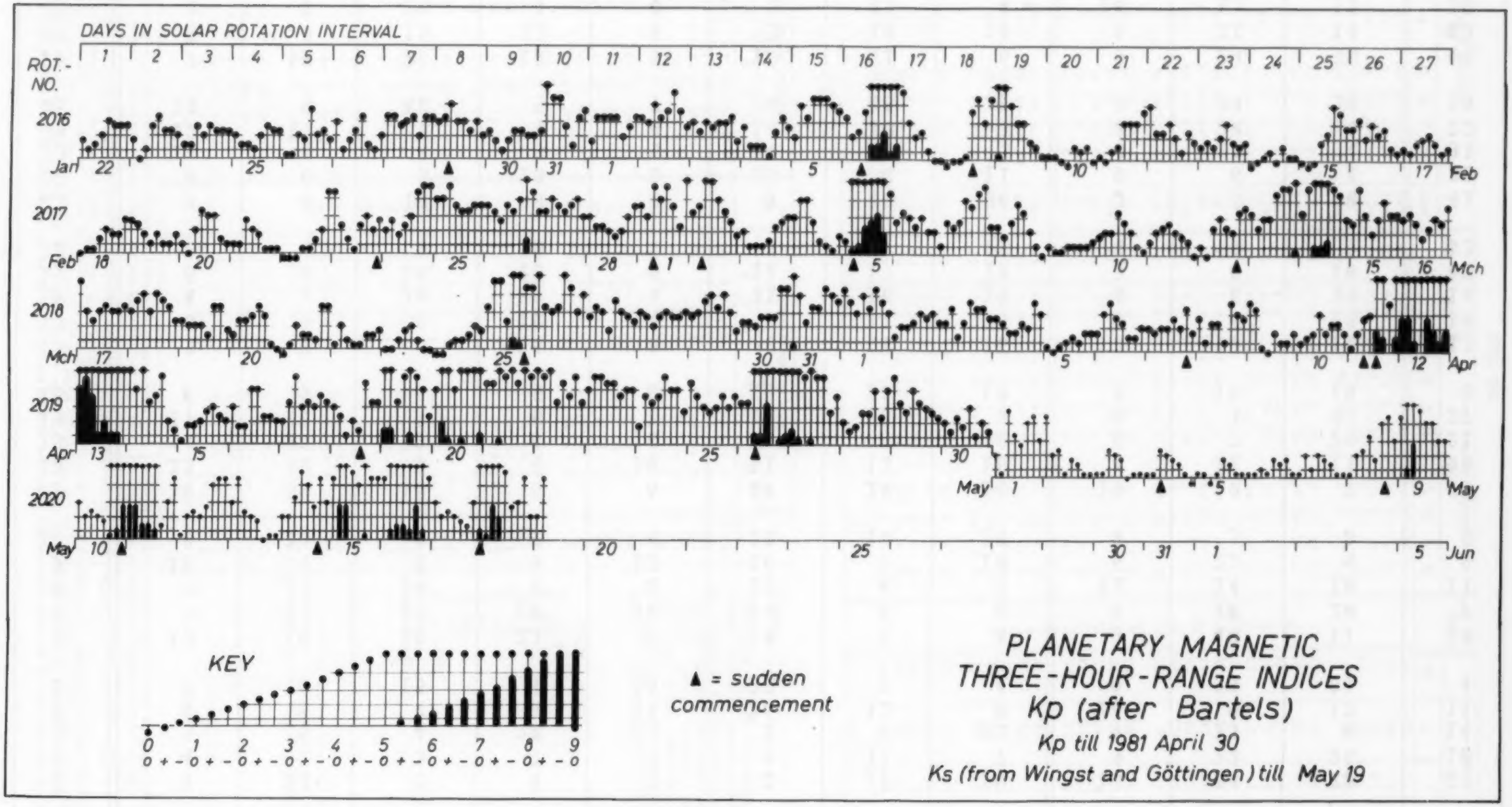
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAY	1980 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1981 JAN	FEB	MAR	APR
1	8	22	5	4	7	2	16	19	13	14	28	23
2	4	7	3	7	4	5	11	7	9	22	25	10
3	3	9	4	20	12	5	5	21	9	13	8	14
4	4	5	7	8	12	26	12	8	14	9	12	11
5	7	4	15	4	10	22	5	4	9	25	81	4
6	12	16	10	21	9	14	6	4	9	48	11	10
7	9	27	13	10	10	12	6	6	6	20	20	9
8	7	23	14	4	8	12	6	9	11	14	10	11
9	18	14	8	9	12	16	9	10	6	22	4	8
10	8	33	4	9	4	22	14	10	9	3	8	8
11	38	59	10	8	6	40	24	16	19	10	7	39
12	23	32	5	8	18	11	12	16	4	11	11	96
13	14	27	9	6	16	5	6	6	6	7	28	121
14	17	10	9	6	8	11	10	8	6	3	45	27
15	6	5	6	5	8	15	22	10	7	10	19	8
16	3	9	6	26	8	3	16	16	12	10	14	13
17	3	3	6	10	14	5	11	5	8	6	18	19
18	4	3	30	18	4	21	16	15	4	6	19	14
19	8	8	16	28	6	11	17	79	3	6	10	45
20	5	6	9	10	7	4	17	21	4	9	9	53
21	4	6	14	8	2	7	13	26	2	5	8	41
22	6	6	5	10	8	23	8	11	9	6	4	33
23	11	6	4	5	5	44	10	5	8	12	4	31
24	12	13	7	4	4	14	12	3	8	20	4	22
25	34	8	46	5	7	24	16	8	7	24	36	19
26	7	15	26	12	5	13	21	6	8	29	28	62
27	3	3	15	22	6	3	19	10	8	21	14	43
28	4	3	14	4	6	2	23	4	16	11	12	13
29	6	5	6	4	9	3	16	9	15		18	19
30	10	8	8	6	5	10	24	13	7		16	7
31	16		6	7		30		15	22		26	
MEAN	10	13	11	10	8	14	13	13	9	14	18	23

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

APRIL 1981

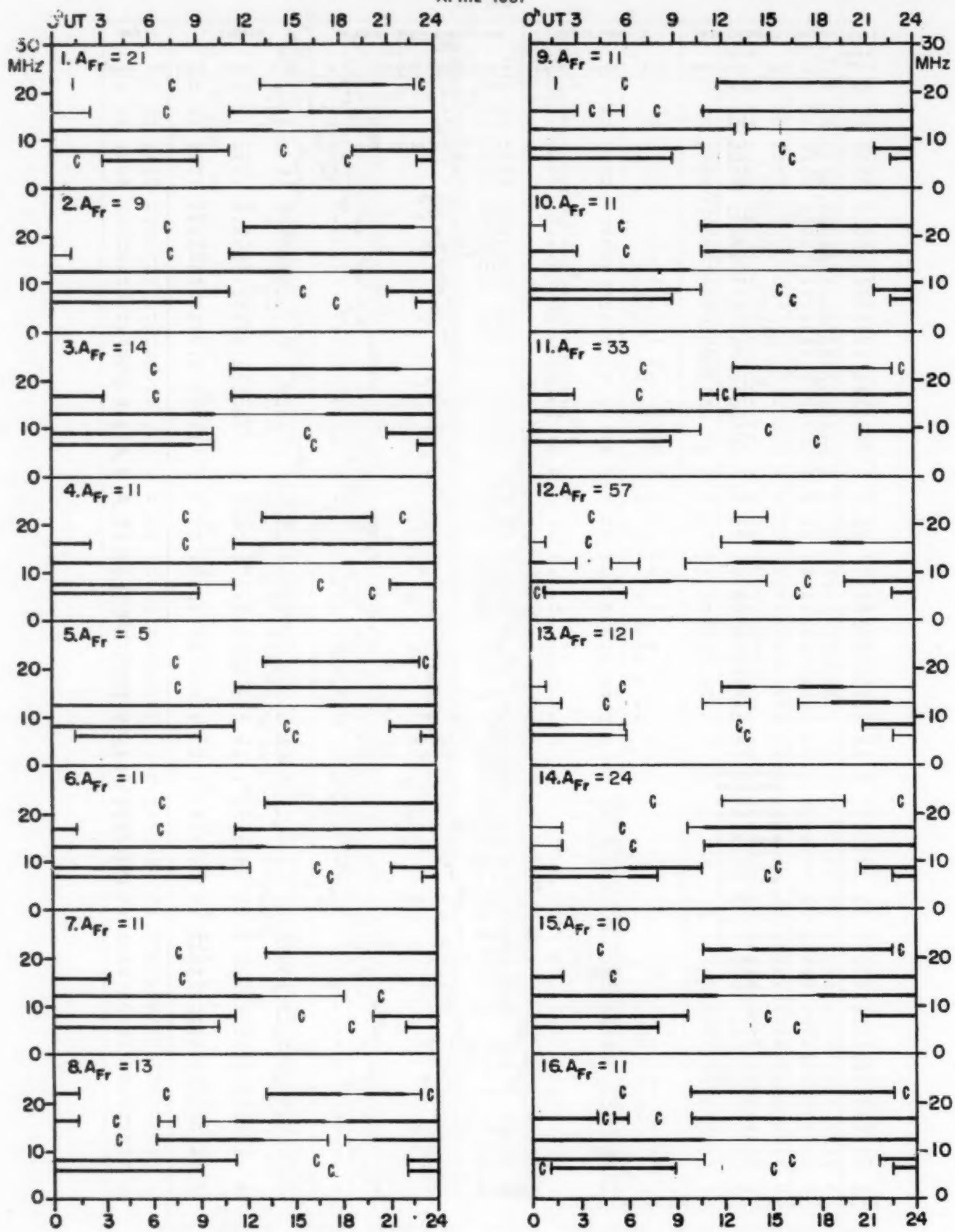
OBS.	GEOMAGNETIC	COMMENCEMENT			SC - AMPLITUDES			MAXIMUM 3 HOUR - INDEX K		RANGES			UT END	
3 letter code	LATITUDE	DAY	hr min (UT)	TYPE	D(')	H(γ)	Z(γ)	DAY (3 HOUR PERIOD)	K	D(')	H(γ)	Z(γ)	DAY	HOUR
HUA	00.6S	01	0030	..	..	..	..	01(6)	6	8	336	51	01	23
HYB	07.6N	03	0347	SC	- .3	26	- 3	03(2)	4	7	151	24	04	22
KGL	56.5S	03	0347	SC	-24	21	8	03(7)	4	--	--	--	04	00
FRD	49.6N	07	1953	SC*	2	22	- 3	07(7) 08(6) 09(1)	4	25	110	54	10	--
HYB	07.6N	07	1952	SC	- .2	14	- 1	07(7) 08(6,7)	3	7	155	45	08	22
HUA	00.6S	07	1953	SC*	2	57	7	08(6)	6	10	376	63	08	23
KGL	56.5S	07	1954	SC	10	10	--	08(3)	4	--	--	--	09	05
COL	64.6N	11	08--	..	..	..	..	13(2)	7	250	1480	960	14	22
SIT	60.0N	11	08--	..	..	..	..	13(2)	8	--	--	780	14	22
NEW	55.1N	11	1339	SC	4	39	3	13(2,3)	9	207	1456	134	15	01
WIT	54.2N	11	1339	SC	-11	105	0	12(5) 13(1,2)	7	63	410	290	14	12
FRD	49.6N	11	0725	SC	1	-10	3	13(2)	9	70	740	310	15	00
SJG	29.9N	11	1339	SC	1.0	20	13	13(1)	8	14	365	90	14	18
HON	21.1N	11	1339	SC	--	33	13	13(1)	7	15	--	86	14	01
JAI	17.3N	11	1341	SC	- 2.0	47	-12		-	9	282	67	14	16
UJJ	13.5N	11	1341	SC	- 1.3	52	-11		-	9	265	65	14	16
ABG	09.5N	11	1341	SC	- 1.7	39	-13	12(1)	7	8	240	80	14	16
HYB	07.6N	11	1339	SC	- 1.0	44	- 1	13(1)	8	8	284	43	14	19
GUA	04.0N	11	1339	SC*	--	33	- 9	13(1)	9	10	390	70	14	16
ANN	01.5N	11	1341	SC	..	..	..		-	--	--	--	14	16
HUA	00.6S	11	0722	SC	-16	- 2	- 1	13(7)	8	12	728	93	13	23
TRD	01.2S	11	1341	SC	- 0.4	39	55		-	5	443	..	14	16
PMG	18.6S	11	05--	..	..	..	..	13(1,2)	7	12	300	110	14	18
HER	33.7S	11	0724	SC	- 2	-14	- 7	12(1,8) 13(1,2,3)	6	42	277	185	14	17
GNA	43.2S	11	05--	..	..	..	..	13(1)	7	30	280	190	14	10
TOO	46.7S	11	05--	..	..	..	..	12(5) 13(1,2,3,4,5)	6	40	260	250	14	18
KGL	56.5S	11	0723	SC	--	--	--	13(1)	9	--	--	--	14	09
KGL	56.5S	11	1339	SCA	25	40	10	13(1)	9	--	--	--	14	09
KGL	56.5S	12	1419	SC	65	74	30	13(1)	9	--	--	--	14	09
HYB	07.6N	15	1016	SC	- 0.3	12	- 1	16(4,5)	4	6	115	34	16	23
NEW	55.1N	17	2043	SC*	2	17	--	20(2,3)	6	69	237	357	25	12
HYB	07.6N	17	0605	SC	- .1	27	- 4	17(3)	5	7	147	47	18	11
COL	64.6N	18	1502	SC*	-11	72	-10	22(3)	7	206	1380	810	25	15
SIT	60.0N	18	1504	SC*	- 3	18	6	20(2)	7	--	--	620	23	23
FRD	49.6N	18	15--	..	..	..	..	19(1) 20(2,8)	6	33	161	139	--	--
SJG	29.9N	18	1502	SC	- .5	7	1	19(1)	6	10	134	52	24	00
HON	21.1N	18	1503	SC	--	03	03	19(1)	5	10	142	44	19	22
JAI	17.3N	18	1502	SC	- .6	17	- 4		-	--	--	--	19	21
UJJ	13.5N	18	1502	SC	- .5	19	- 5		-	9	157	57	19	21
ABG	09.5N	18	1502	SC	- 0.6	14	- 5	19(4)	6	9	163	62	19	21
HYB	07.6N	18	1502	SC	- .3	16	- 1	19(5)	6	8	184	29	19	22
GUA	04.0N	18	1503	..	..	..	..	19(1)	6	10	220	60	24	17
ANN	01.5N	18	1502	SC	- .9	20	12		-	8	242	74	19	21
HUA	00.6S	18	1503	SC*	2	100	3	19(5,6)	6	9	392	45	19	21
TRD	01.2S	18	1502	SC	- .3	15	21		-	5	298	155	19	21
PMG	18.6S	18	1502	SC*	- .4	13	7	19(1,4,5) 20(2,3,4) 21(3,5)	5	9	180	70	24	20
HER	33.7S	18	1503	SC	2	13	12	19(2,5) 20(5,8) 23(3)	5	41	129	117	23	13
GNA	43.2S	18	15--	..	..	..	..	19(1,5) 20(6,7) 22(7) 23(8)	5	18	130	120	25	08
KGL	56.5S	18	1502	SC	--	--	--	19(2)	6	--	--	--	19	22
JAI	17.3N	20	0200	..	..	..	..		-	--	--	--	23	02
UJJ	13.5N	20	0200	..	..	..	..		-	9	107	48	23	02
ABG	09.5N	20	0200	..	..	..	..	20(3,4,8) 21(3)	5	7	114	56	23	02
HYB	07.6N	20	0200	..	..	..	..	20(3)	5	7	144	41	23	22
ANN	01.5N	20	0200	..	..	..	..		-	7	184	81	23	02
HUA	00.6S	20	0236	SC	--	3	2	20(6,7)	6	8	307	58	21	23
TRD	01.2S	20	0200	..	..	..	..		-	5	213	113	23	02
HYB	07.6N	24	0100	..	..	..	..	24(2,3,4,7) 25(6)	3	5	117	44	25	23
HUA	00.6S	24	0352	SC	--	5	--	24(5)	6	5	296	54	24	20
COL	64.6N	26	02--	..	..	..	..	26(4)	7	247	1590	090	27	22
SIT	60.0N	26	01--	..	..	..	..	26(4)	7	--	--	580	27	21
NEW	55.1N	26	0813	SC	11	70	26	26(4) 27(2,4)	6	58	321	428	30	04
WIT	54.2N	26	0813	SC*	10	-22	0	26(5)	7	48	270	90	27	18
FRD	49.6N	26	0813	SC*	5	34	- 3	26(5)	7	44	232	152	30	--
SJG	29.9N	26	0812	SC	.5	17	4	26(5)	5	12	105	38	28	00
HON	21.1N	26	08--	SC	--	45	--	26(3,4)	5	05	99	21	28	01
JAI	17.3N	26	0812	SC	- 2.1	56	-15		-	10	173	53	27	16
UJJ	13.5N	26	0812	SC	- .1	63	-14		-	8	184	49	27	16
ABG	09.5N	26	0812	SC	- 1.7	49	-17	26(3,4)	6	10	178	56	27	16
HYB	07.6N	26	0813	SC	- 1.1*	56	*- 5	26(4,5)	6	8	204	30	28	01
GUA	04.0N	26	0813	SC	--	50	-13	26(4)	5	--	160	50	27	16
ANN	01.5N	26	0812	SC	- 3.6	..	38		-	9	--	87	27	16
HUA	00.6S	26	0812	SC	1	14	5	26(5)	8	11	429	53	27	24
TRD	01.2S	26	0812	SC	- .3	112	..		-	5	318	169	27	16
PMG	18.6S	26	0813	SC	.4	56	42	26(4,5)	6	4	160	80	27	17
HER	33.7S	26	0813	SC*	8	32	7	26(8) 27(2)	5	31	126	92	27	14
GNA	43.2S	26	0812	SC*	5.5*	51	* 24	* 26(3,4,5,7,8) 27(4)	5	15	130	120	28	00
TOO	46.7S	26	0812	SC*	- 7	-88	10	26(5)	6	19	190	60	28	00
KGL	56.5S	26	0811	SCA	-80	82	35	26(7)	7	--	--	--	27	06
HYB	07.6N	28	1109	SC	- .1	8	- 1	29(4)	4	7	108	19	29	23

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HYDERABAD JAIPUR
KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

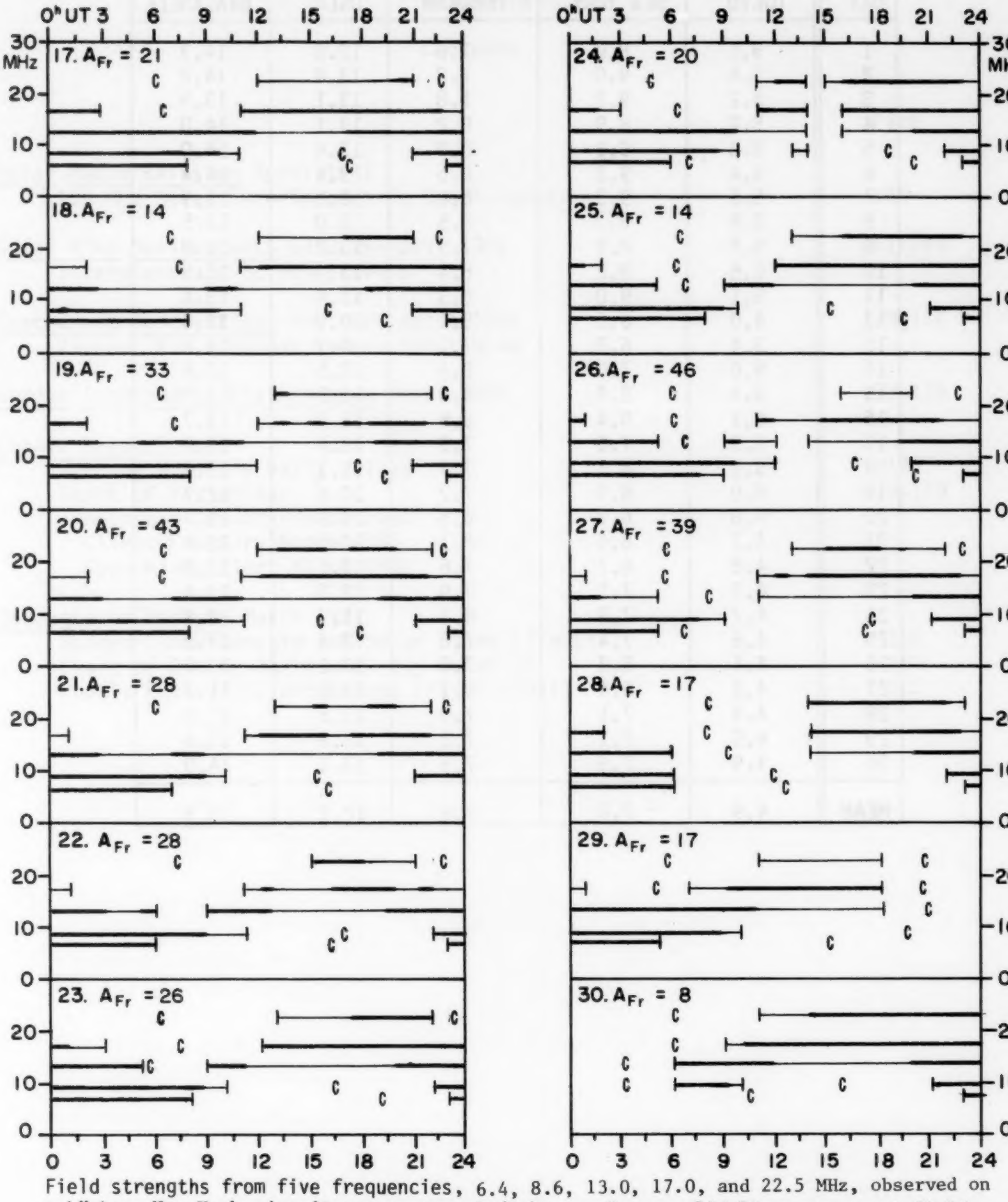
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1981



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1981



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0, and 22.5 MHz, observed on a Lüchow -New York circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

APRIL 1981

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.1	8.0	7.6	12.6	14.3
2	5.4	9.0	7.8	13.4	14.2
3	5.2	9.7	7.8	13.1	13.9
4	5.2	8.9	8.2	13.1	14.0
5	5.8	9.1	8.9	13.4	14.0
6	5.4	9.3	8.5	13.4	14.4
7	5.6	9.3	8.1	13.1	13.9
8	5.5	8.3	8.5	13.0	13.5
9	5.8	8.9	7.9	13.2	13.8
10	5.5	9.2	8.4	13.3	13.6
11	5.1	9.0	6.3	12.4	13.4
12	4.0	6.5	5.1	10.9	12.4
13	3.4	6.2	7.1	8.7	11.8
14	5.0	7.0	8.4	12.5	13.4
15	5.4	8.4	8.4	13.3	13.3
16	5.1	8.4	8.5	13.4	13.7
17	5.3	7.6	7.3	12.4	13.0
18	5.1	6.7	7.7	12.3	13.3
19	4.9	6.5	7.7	10.6	12.7
20	4.8	6.9	6.5	10.9	12.7
21	4.7	6.4	8.1	10.5	12.8
22	4.6	6.7	7.6	11.5	13.2
23	4.7	7.1	7.9	12.0	13.4
24	4.7	7.3	6.7	11.7	12.8
25	4.6	7.4	7.6	12.6	13.5
26	4.4	6.3	7.0	10.1	12.0
27	4.2	6.4	6.1	10.8	11.7
28	4.3	7.1	7.0	11.5	12.0
29	4.5	7.1	7.2	12.9	13.4
30	4.9	7.9	7.9	13.1	14.0
MEAN	4.9	7.8	7.6	12.2	13.3

SGD 442 Part I (Prompt)

LATE DATA

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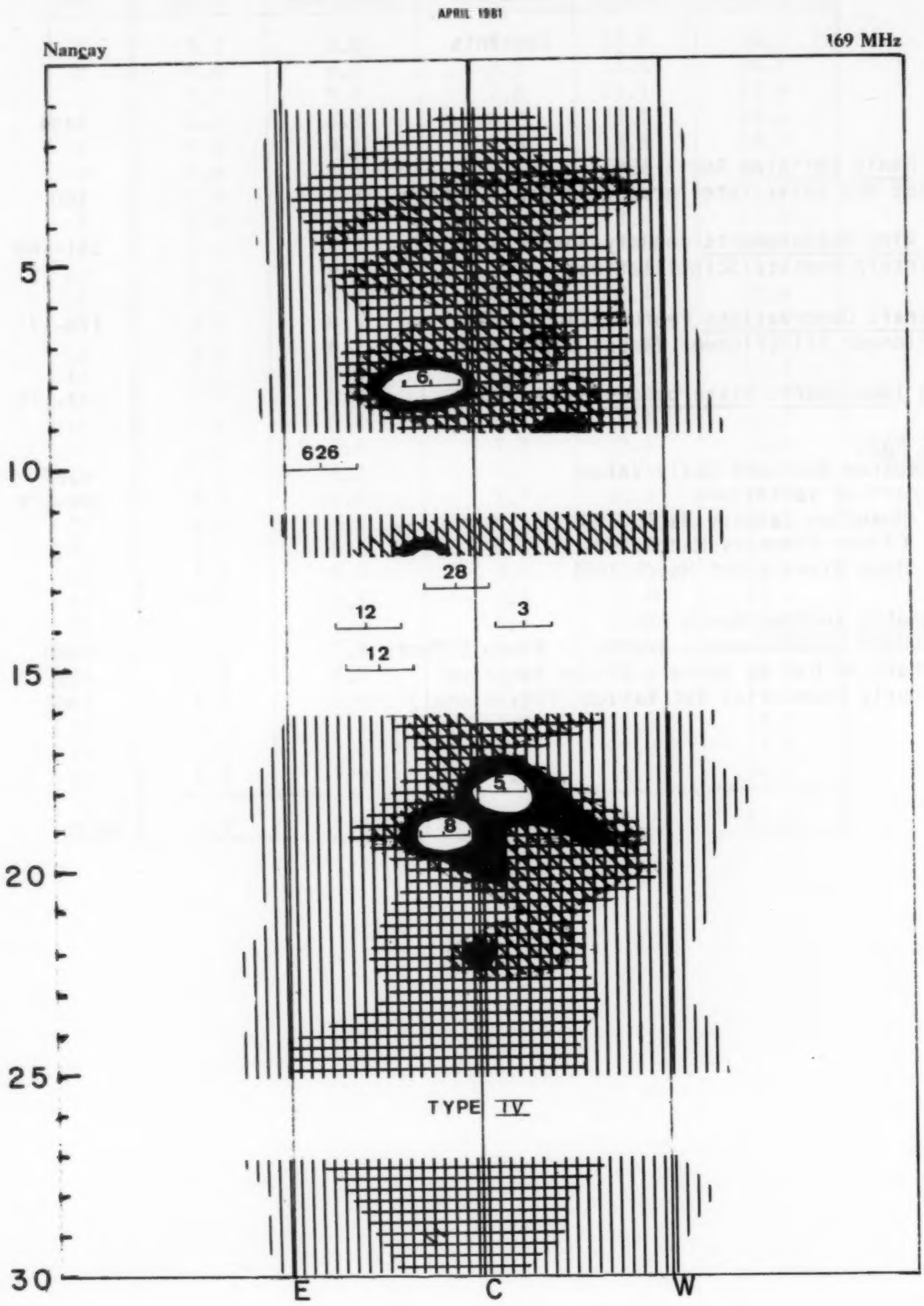
SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION



SOLAR WIND

Interplanetary Scintillations

JANUARY-APRIL 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810101	1	23	316	30	245	27	2	3C446	55	4	0.82	-35	-3.77	1703.53
810102	2	1	311	43	297	69	2	3C459	70	2	0.94	-19	-1.82	1703.46
	2	14	255	36	376	85	2	3C283	78	-9	0.98	17	1.11	1703.32
810103	3	1	361	21	373	21	2	3C459	69	2	0.93	-20	-1.90	1703.53
	3	3	411	10	393	13	2	3C48	111	4	1.14	-12	-0.28	1703.50
	3	14	321	10	329	10	2	3C283	79	-9	0.99	18	1.25	1703.41
	3	16	360	19	372	32	3	3C298	74	1	0.96	18	1.12	1703.44
	3	23	521	26	535	38	2	3C446	53	4	0.80	-36	-3.50	1703.68
810104	4	1	302	47	334	42	2	3C459	68	2	0.93	-20	-1.99	1703.53
	4	2	329	8	399	9	3	3C48	110	4	1.14	-12	-0.20	1703.48
	4	14	394	19	442	31	2	3C283	80	-9	0.99	18	1.26	1703.48
	4	16	445	11	353	79	2	3C298	75	1	0.97	17	1.12	1703.51
810105	5	16	442	47	397	11	2	3C298	76	1	0.97	17	1.17	1703.55
810106	6	2	355	40	434	81	2	3C48	108	3	1.13	-12	-0.24	1703.58
810107	7	14	434	52	418	19	2	3C283	83	-9	1.01	16	1.24	1703.61
810108	8	0	380	43	294	34	2	3C459	64	3	0.90	-25	-2.40	1703.74
	8	14	467	20	451	37	2	3C283	84	-9	1.01	16	1.24	1703.66
	8	16	370	16	368	17	2	3C298	79	0	0.99	18	1.26	1703.62
810109	9	0	435	14	404	43	2	3C459	63	3	0.89	-26	-2.46	1703.80
	9	2	443	46	449	34	2	3C48	105	3	1.12	-12	-0.49	1703.73
	9	14	435	51	423	70	2	3C283	85	-10	1.02	17	1.33	1703.68
	9	16	456	17	465	12	2	3C298	80	0	0.99	17	1.22	1703.69
	9	18	272	26	474	58	2	3C368	38	39	0.62	32	-0.25	1703.65
810110	10	2	381	8	397	10	3	3C48	104	3	1.11	-13	-0.49	1703.74
	10	3	301	26	243	54	2	3C43	99	1	1.09	-14	-0.58	1703.70
	10	16	336	15	416	53	2	3C298	81	0	1.00	18	1.28	1703.68
810111	11	14	421	15	468	53	2	3C283	87	-10	1.03	16	1.34	1703.75
	11	16	369	25	390	14	2	3C298	82	0	1.00	17	1.25	1703.73
	11	23	281	34	479	105	2	3C446	45	6	0.71	-44	-5.33	1703.93
810112	12	0	254	13	232	69	2	3C459	60	4	0.87	-28	-3.16	1703.82
	12	2	348	14	374	15	3	3C48	102	3	1.10	-12	-0.42	1703.80
	12	23	414	71	292	50	2	3C459	59	4	0.86	-29	-2.90	1703.95
	12	23	434	45	375	112	2	3C446	44	6	0.69	-46	-4.82	1704.03
810113	13	2	281	8	309	9	3	3C48	101	3	1.10	-13	-0.41	1703.79
	13	13	269	*	297	*	2	3C273	106	-4	1.12	15	1.95	1703.70
	13	14	360	26	221	56	2	3C295	102	8	1.10	8	1.12	1703.80
	13	14	407	82	398	63	2	3C283	89	-10	1.04	16	1.34	1703.81
	13	15	283	19	316	56	2	3C298	84	0	1.01	18	1.38	1703.74
	13	22	303	14	294	13	2	3C446	43	6	0.68	-46	-5.46	1704.02
810114	14	0	358	13	371	12	2	3C459	58	4	0.85	-30	-3.08	1703.97
	14	2	332	12	414	42	2	3C48	100	3	1.09	-13	-0.53	1703.86
	14	15	335	26	359	34	2	3C298	85	0	1.02	17	1.34	1703.82
810115	15	0	302	11	292	15	2	3C459	57	4	0.84	-32	-3.43	1703.98
	15	2	375	11	339	10	2	3C48	99	3	1.09	-14	-0.64	1703.93
	15	15	294	32	352	12	2	3C298	86	0	1.02	16	1.32	1703.82
	15	22	288	42	405	93	2	3C446	41	6	0.66	-48	-5.93	1704.10
810116	16	0	274	11	336	52	2	3C459	56	5	0.83	-32	-3.61	1704.00
	16	2	369	25	335	38	2	3C48	98	3	1.08	-14	-0.65	1703.96
	16	12	369	24	445	97	2	3C273	109	-5	1.13	15	1.78	1703.89
	16	13	333	18	319	9	2	3C283	91	-10	1.05	16	1.46	1703.88
	16	15	351	16	400	21	2	3C298	87	-1	1.03	17	1.37	1703.90
810117	17	0	320	13	293	48	2	3C459	55	5	0.82	-33	-3.62	1704.08
	17	2	352	8	352	8	3	3C48	97	3	1.08	-14	-0.66	1703.99
	17	12	407	77	381	59	2	3C273	110	-5	1.14	15	1.72	1703.94
	17	13	271	56	328	16	2	3C283	92	-10	1.05	16	1.54	1703.87
	17	15	390	12	354	11	2	3C298	88	-1	1.03	17	1.44	1703.95
810118	18	2	308	18	293	15	3	3C48	96	2	1.07	-13	-0.59	1704.00
	18	15	419	23	405	39	2	3C298	89	-1	1.04	18	1.47	1704.00
	18	22	291	58	320	138	2	3C446	37	7	0.60	-49	-6.32	1704.23
	18	23	366	33	306	36	2	3C459	53	5	0.80	-35	-3.72	1704.18
810119	19	2	357	15	297	17	2	3C48	95	2	1.07	-13	-0.67	1704.07
	19	15	333	9	359	9	2	3C298	90	-1	1.04	16	1.46	1703.99

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810120	20	22	403	32	378	18	2	3C446	35	7	0.57	-52	-5.98	1704.35
810121	21	0	325	13	290	18	2	3C459	51	6	0.78	-37	-4.13	1704.24
	21	2	315	9	324	9	3	3C48	94	2	1.06	-14	-0.76	1704.12
810122	22	1	320	9	308	12	3	3C48	93	2	1.06	-14	-0.74	1704.16
	22	12	290	8	289	12	2	3C273	115	-5	1.16	14	2.07	1704.05
	22	13	387	47	319	50	2	3C283	97	-10	1.08	16	1.56	1704.13
	22	15	335	11	321	6	2	3C298	92	-1	1.05	16	1.49	1704.10
	22	23	332	15	353	32	2	3C459	49	6	0.75	-38	-4.32	1704.33
810123	23	1	388	10	338	10	3	3C48	92	2	1.05	-14	-0.86	1704.23
	23	12	309	8	420	38	2	3C273	116	-5	1.16	14	2.01	1704.10
	23	15	414	32	363	42	2	3C298	93	-1	1.06	17	1.49	1704.18
	23	22	345	16	363	17	2	3C446	32	8	0.53	-55	-6.76	1704.46
810124	24	0	250	33	298	55	2	3C459	48	6	0.74	-41	-5.02	1704.32
	24	1	338	40	318	8	3	3C48	91	2	1.05	-15	-0.88	1704.24
	24	4	243	31	248	21	2	3C147	135	1	1.23	-6	1.28	1704.09
810125	25	5	428	19	458	22	2	3C144	139	-5	1.24	-9	0.35	1704.28
	25	13	377	47	310	12	2	3C283	100	-10	1.09	16	1.66	1704.23
	25	21	372	56	334	19	2	3C409	43	42	0.68	-3	-1.82	1704.37
	25	23	410	13	301	9	3	3C459	46	7	0.72	-42	-4.46	1704.48
810126	26	1	326	7	316	7	4	3C48	89	2	1.04	-15	-0.93	1704.31
	26	5	413	42	397	16	2	3C144	138	-5	1.24	-8	0.42	1704.31
	26	22	437	28	410	36	2	3C446	29	9	0.48	-58	-6.61	1704.61
	26	23	298	10	327	11	2	3C459	45	7	0.71	-43	-5.11	1704.48
810127	27	1	329	8	358	9	3	3C48	88	2	1.03	-14	-0.88	1704.35
	27	5	402	16	417	66	2	3C144	137	-5	1.24	-9	0.37	1704.35
	27	11	444	43	252	39	2	3C273	120	-5	1.18	13	1.72	1704.32
	27	23	410	12	402	11	2	3C459	44	7	0.69	-43	-4.69	1704.56
810128	28	1	301	10	348	22	3	3C48	87	2	1.03	-14	-0.95	1704.37
	28	5	379	15	386	14	4	3C144	136	-5	1.23	-9	0.39	1704.37
	28	23	402	16	389	25	3	3C459	43	8	0.68	-44	-4.86	1704.60
810129	29	1	506	10	503	10	4	3C48	86	2	1.02	-14	-1.03	1704.50
	29	5	493	48	457	56	2	3C144	135	-5	1.23	-10	0.09	1704.46
	29	11	476	13	490	75	2	3C273	122	-5	1.19	13	1.70	1704.41
	29	12	447	39	381	137	2	3C283	104	-10	1.11	15	1.60	1704.40
	29	13	497	16	508	20	2	3C295	110	7	1.14	7	1.03	1704.44
	29	15	492	9	487	39	2	3C298	99	-2	1.09	16	1.52	1704.43
	29	22	410	31	502	38	2	3C446	26	10	0.44	-62	-7.27	1704.73
810130	30	1	379	13	416	14	4	3C48	85	2	1.02	-15	-1.05	1704.49
	30	3	290	13	442	21	2	3C144-	134	-5	1.23	-9	0.71	1704.38
	30	5	430	13	428	12	4	3C144	134	-5	1.23	-10	0.22	1704.47
	30	15	296	23	374	37	2	3C298	100	-2	1.09	16	1.74	1704.36
	30	21	329	26	321	62	2	3C446	25	10	0.42	-62	-8.00	1704.75
	30	23	326	20	314	213	2	3C459	41	8	0.66	-46	-5.48	1704.66
810131	31	1	585	16	501	23	2	3C48	84	2	1.01	-15	-1.14	1704.60
	31	4	385	16	357	14	2	3C147	130	1	1.21	-8	0.39	1704.48
	31	5	430	39	468	13	2	3C144	133	-5	1.22	-10	0.14	1704.51
	31	14	324	77	463	12	2	3C298	101	-2	1.10	15	1.68	1704.42
	31	17	387	77	352	99	2	3C368	51	20	0.78	30	1.18	1704.48
	31	23	454	63	458	49	2	3C459	40	9	0.64	-47	-5.08	1704.74
810201	32	1	405	18	419	14	4	3C48	83	1	1.01	-15	-1.11	1704.58
	32	2	446	13	477	83	2	3C144-	132	-6	1.22	-10	0.15	1704.55
	32	5	450	15	500	17	3	3C144	132	-6	1.22	-9	0.18	1704.56
	32	6	438	111	465	138	2	3C161	136	-12	1.23	-8	0.37	1704.54
810202	33	5	532	24	517	36	3	3C144	131	-6	1.22	-10	-0.01	1704.62
	33	6	505	20	526	27	3	3C161	135	-12	1.23	-7	0.26	1704.61
	33	7	441	91	400	56	2	3C144+	130	-6	1.21	-10	0.10	1704.59
	33	11	373	38	395	35	2	3C273	126	-5	1.20	12	1.91	1704.51
	33	12	291	32	291	29	2	3C283	108	-10	1.13	15	1.94	1704.46
	33	14	409	40	385	34	2	3C298	103	-2	1.11	15	1.59	1704.54
	33	23	297	49	211	27	2	3C459	38	9	0.62	-48	-6.11	1704.77
810203	34	1	285	29	289	13	3	3C48	81	1	1.00	-15	-1.15	1704.58
	34	23	364	23	386	82	2	3C459	37	10	0.60	-50	-5.87	1704.84
810204	35	0	284	14	309	13	3	3C48	80	1	0.99	-15	-1.25	1704.62

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	35	23	374	35	312	28	2	3C459	36	10	0.59	-50	-5.88	1704.88
810205	36	0	416	12	407	12	3	3C48	79	1	0.99	-16	-1.29	1704.73
810206	37	0	347	10	375	15	3	3C48	79	1	0.99	-15	-1.27	1704.74
	37	12	493	64	495	85	2	3C283	112	-11	1.15	14	1.60	1704.71
	37	14	713	109	618	28	3	3C298	107	-2	1.12	14	1.33	1704.76
810207	38	1	370	34	351	18	2	3C48	78	1	0.98	-16	-1.32	1704.79
	38	2	422	14	438	15	2	3C144-	126	-6	1.20	-11	-0.02	1704.77
	38	4	477	22	466	14	3	3C144	126	-6	1.20	-11	-0.11	1704.79
	38	6	353	35	331	66	2	3C161	131	-13	1.22	-8	0.49	1704.72
	38	14	498	11	554	30	3	3C298	108	-2	1.13	14	1.49	1704.75
	38	22	249	20	446	145	2	3C459	33	11	0.54	-53	-7.47	1704.96
810208	39	0	436	11	422	38	3	3C48	77	1	0.98	-16	-1.31	1704.85
	39	5	409	10	344	8	2	3C161	131	-13	1.22	-8	0.38	1704.79
	39	14	407	11	564	204	2	3C298	109	-2	1.13	15	1.72	1704.75
810209	40	23	281	20	342	88	2	3C459	31	12	0.52	-55	-7.38	1705.06
810210	41	2	419	17	569	24	2	3C144-	123	-6	1.19	-12	-0.12	1704.88
810212	43	0	375	26	376	12	3	3C48	73	1	0.96	-15	-1.40	1704.98
810214	45	0	293	20	296	12	2	3C48	71	1	0.95	-17	-1.65	1705.01
	45	4	376	36	351	37	2	3C144	118	-6	1.17	-12	-0.10	1705.01
	45	5	224	23	344	23	2	3C161	126	-13	1.20	-9	0.94	1704.85
810215	46	0	329	12	321	41	2	3C48	70	2	0.94	-18	-1.72	1705.07
	46	[illegible]	308	22	340	12	2	3C144-	118	-6	1.17	-13	0.02	1705.00
	46	5	406	46	239	49	2	3C161	125	-13	1.20	-9	0.19	1705.05
	46	10	239	15	207	70	2	3C273	139	-6	1.24	10	2.59	1704.85
810216	47	0	298	9	323	11	3	3C48	69	2	0.93	-18	-1.85	1705.09
	47	3	411	31	385	33	2	3C147	116	0	1.16	-11	-0.13	1705.10
	47	4	385	16	319	15	3	3C144	116	-7	1.16	-13	-0.21	1705.09
	47	5	300	17	317	12	2	3C161	124	-13	1.19	-10	0.39	1705.02
810217	48	1	293	32	268	41	2	3C144-	116	-7	1.16	-13	0.01	1705.06
	48	4	435	58	444	61	2	3C161	123	-13	1.19	-10	0.04	1705.14
	48	4	337	29	360	19	3	3C144	115	-7	1.16	-13	-0.14	1705.10
	48	5	402	12	385	12	3	3C161	123	-13	1.19	-10	0.07	1705.13
810218	49	0	351	51	337	19	3	3C48	67	3	0.92	-20	-1.97	1705.21
	49	1	307	15	311	30	2	3C144-	115	-7	1.16	-13	-0.08	1705.11
	49	3	346	26	337	14	3	3C144	114	-7	1.16	-13	-0.23	1705.14
	49	5	458	11	468	16	2	3C161	123	-14	1.19	-10	-0.05	1705.19
	49	19	416	40	342	26	2	3C409	45	35	0.71	18	-0.00	1705.19
810219	50	0	327	22	319	15	3	3C48	66	3	0.91	-21	-2.13	1705.23
	50	3	356	47	342	25	2	3C147	113	0	1.15	-11	-0.07	1705.18
	50	4	286	13	355	18	2	3C144	113	-7	1.15	-12	0.01	1705.13
	50	6	323	24	329	35	2	3C144+	113	-7	1.15	-12	-0.08	1705.17
	50	13	297	9	264	32	2	3C298	119	-2	1.18	12	1.99	1705.08
810220	51	0	327	10	343	10	4	3C48	65	4	0.91	-21	-2.13	1705.27
	51	3	279	32	311	14	2	3C144	112	-7	1.15	-11	0.07	1705.16
	51	11	437	16	736	678	2	3C283	126	-11	1.20	11	1.65	1705.20
	51	13	352	14	402	24	2	3C298	120	-2	1.18	12	1.84	1705.16
810221	52	23	321	105	413	19	2	3C48	64	5	0.90	-23	-2.39	1705.35
810222	53	6	399	21	399	26	2	3C144+	110	-7	1.14	-14	-0.42	1705.33
	53	19	400	82	342	23	2	3C409	46	33	0.72	20	0.20	1705.33
	53	23	376	14	522	58	2	3C48	63	5	0.89	-25	-2.45	1705.42
810223	54	12	420	*	414	*	2	3C295	118	5	1.17	4	1.02	1705.33
	54	23	350	63	377	36	3	3C48	62	5	0.88	-24	-2.51	1705.44
810224	55	3	398	41	385	63	2	3C144	108	-7	1.13	-14	-0.51	1705.40
	55	5	382	8	382	9	2	3C161	118	-14	1.17	-12	-0.10	1705.38
	55	11	436	14	434	80	2	3C283	130	-11	1.21	11	1.72	1705.34
	55	12	404	17	355	48	2	3C298	124	-3	1.19	12	1.76	1705.33
	55	23	414	14	444	14	3	3C48	61	6	0.87	-25	-2.52	1705.51
810225	56	1	437	20	449	21	2	3C144-	107	-7	1.12	-15	-0.62	1705.45
	56	3	495	20	470	19	3	3C144	107	-7	1.12	-14	-0.65	1705.47
	56	4	339	9	372	10	2	3C161	117	-14	1.17	-11	0.04	1705.39
	56	11	387	25	393	36	2	3C283	131	-11	1.22	11	1.86	1705.36
	56	23	438	52	425	14	2	3C48	60	6	0.87	-27	-2.66	1705.56
810226	57	1	429	21	402	20	2	3C144-	106	-7	1.12	-14	-0.55	1705.48

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	57	3	288	14	290	12	2	3C144	106	-7	1.12	-14	-0.32	1705.40
	57	13	315	35	324	129	2	3C298	125	-3	1.20	11	1.97	1705.35
810227	58	2	301	67	271	70	2	3C147	106	0	1.12	-13	-0.27	1705.44
	58	3	482	19	531	21	3	3C144	105	-7	1.12	-14	-0.68	1705.55
	58	4	249	17	270	15	2	3C161	115	-14	1.16	-12	0.25	1705.38
810228	59	3	297	48	360	24	2	3C144	104	-7	1.11	-14	-0.43	1705.48
	59	11	344	*	430	*	2	3C283	133	-11	1.22	10	1.94	1705.44
	59	12	431	*	415	*	2	3C295	119	5	1.18	3	0.91	1705.52
	59	23	632	34	600	37	2	3C48	57	8	0.84	-29	-2.72	1705.72
810301	60	3	367	16	374	26	2	3C144	103	-7	1.11	-15	-0.60	1705.57
	60	23	479	38	573	50	2	3C48	56	8	0.83	-30	-2.98	1705.73
810302	61	2	407	36	391	14	2	3C147	104	0	1.11	-13	-0.48	1705.62
	61	3	484	13	498	13	3	3C144	102	-7	1.10	-15	-0.81	1705.66
	61	4	493	57	471	38	2	3C161	112	-14	1.15	-12	-0.36	1705.65
	61	22	595	67	488	30	2	3C48	56	9	0.83	-30	-2.82	1705.79
810303	62	3	315	26	396	17	2	3C144	101	-7	1.10	-15	-0.60	1705.61
	62	12	382	41	420	23	2	3C298	130	-3	1.21	9	1.72	1705.58
	62	23	408	27	407	20	3	3C48	55	9	0.82	-32	-3.27	1705.79
810304	63	0	467	68	390	51	2	3C144-	101	-7	1.10	-15	-0.80	1705.72
	63	3	356	55	428	16	2	3C144	100	-7	1.09	-15	-0.68	1705.68
	63	23	591	17	590	16	3	3C48	54	10	0.81	-31	-3.00	1705.87
810305	64	3	397	18	407	37	2	3C144	99	-7	1.09	-15	-0.75	1705.74
	64	22	477	66	430	19	2	3C48	53	10	0.80	-34	-3.37	1705.89
810306	65	0	481	19	481	19	3	3C144-	99	-7	1.09	-16	-0.91	1705.80
	65	4	501	49	517	49	2	3C161	109	-14	1.13	-12	-0.46	1705.80
810307	66	2	382	16	431	17	2	3C144	97	-7	1.08	-15	-0.78	1705.80
	66	10	544	96	558	44	2	3C283	140	-10	1.24	9	1.50	1705.79
	66	13	542	83	489	88	2	3C298	134	-3	1.23	10	1.49	1705.79
	66	22	426	34	450	33	4	3C48	51	11	0.78	-33	-3.53	1705.95
810308	67	2	491	153	555	124	2	3C144	96	-7	1.07	-15	-0.91	1705.88
	67	4	452	27	458	28	3	3C161	107	-15	1.12	-12	-0.40	1705.86
	67	22	436	12	442	12	4	3C48	50	12	0.77	-35	-3.66	1706.00
810309	68	2	379	27	372	33	3	3C144	95	-7	1.07	-16	-0.89	1705.88
	68	4	330	12	355	31	2	3C161	106	-15	1.12	-13	-0.34	1705.83
	68	22	346	10	439	38	3	3C48	49	12	0.75	-35	-4.01	1706.01
810310	69	0	544	87	539	81	2	3C144-	95	-7	1.07	-17	-1.07	1705.97
	69	2	421	24	435	24	2	3C147	96	0	1.07	-14	-0.78	1705.93
	69	2	487	17	495	10	4	3C144	94	-7	1.06	-16	-1.02	1705.96
	69	3	444	12	420	11	3	3C161	106	-15	1.12	-12	-0.48	1705.93
	69	5	475	59	478	59	2	3C144+	94	-7	1.06	-16	-0.96	1705.96
	69	6	416	32	421	34	2	3C216	131	-1	1.22	-8	0.30	1705.89
	69	11	414	20	569	27	2	3C298	136	-2	1.23	9	1.72	1705.85
	69	22	308	16	359	17	3	3C48	48	13	0.74	-36	-4.30	1706.03
810311	70	0	417	39	520	49	2	3C144-	94	-7	1.06	-16	-0.98	1705.97
	70	3	391	47	370	191	2	3C144	93	-7	1.06	-16	-0.97	1705.96
	70	4	408	12	386	87	3	3C161	105	-15	1.12	-13	-0.47	1705.95
	70	22	416	13	472	23	4	3C48	48	13	0.74	-37	-4.02	1706.11
810312	71	18	378	17	366	20	2	3C409	55	22	0.82	20	0.61	1705.96
	71	22	420	13	444	15	4	3C48	47	14	0.73	-37	-4.05	1706.15
810313	72	0	309	16	376	21	2	3C144-	92	-8	1.05	-16	-0.95	1705.98
	72	1	508	13	527	13	3	3C147	94	0	1.06	-122	-9.04	1706.37
	72	2	344	10	352	10	3	3C144	91	-8	1.05	-16	-1.01	1706.01
	72	2	433	22	477	12	3	3C144	91	-8	1.05	-16	-1.04	1706.05
	72	3	472	63	329	65	2	3C161	103	-15	1.11	-14	-0.68	1706.05
	72	3	489	82	468	71	2	3C161	103	-15	1.11	-13	-0.62	1706.06
	72	5	480	17	493	17	3	3C144+	91	-8	1.05	-16	-1.07	1706.07
	72	11	655	13	576	12	2	3C298	139	-2	1.24	9	1.33	1706.03
	72	22	413	19	458	11	3	3C48	46	15	0.72	-38	-4.20	1706.19
	72	23	343	65	382	82	2	3C43	38	12	0.62	-48	-5.73	1706.22
810314	73	0	364	14	418	16	2	3C144-	90	-8	1.04	-16	-1.02	1706.06
	73	2	358	9	440	11	3	3C144	90	-8	1.04	-16	-1.03	1706.06
	73	3	411	21	454	18	3	3C161	102	-15	1.10	-13	-0.59	1706.06
	73	4	442	64	429	26	2	3C196	117	0	1.17	-10	-0.12	1706.06

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	73	5	491	17	525	18	2	3C144+	90	-8	1.04	-16	-1.06	1706.12
	73	12	356	17	362	61	2	3C298	140	-2	1.24	8	1.82	1705.96
	73	22	418	11	439	13	4	3C48	45	15	0.71	-39	-4.30	1706.23
810315	74	0	458	79	348	19	2	3C144-	90	-8	1.04	-16	-1.11	1706.13
	74	2	293	26	405	14	2	3C144	89	-8	1.04	-16	-0.97	1706.05
	74	3	363	9	420	52	3	3C161	101	-15	1.10	-13	-0.50	1706.08
	74	22	399	11	445	45	3	3C48	44	16	0.69	-40	-4.51	1706.27
810316	75	1	420	21	412	42	2	3C147	91	0	1.05	-14	-0.87	1706.15
	75	2	429	39	450	14	3	3C144	88	-8	1.03	-17	-1.16	1706.16
	75	3	424	11	390	11	2	3C161	100	-15	1.09	-13	-0.60	1706.15
	75	5	821	49	694	53	2	3C216	126	-1	1.20	-9	-0.30	1706.21
	75	22	336	10	362	13	3	3C48	43	17	0.68	-40	-4.86	1706.29
	75	23	338	33	362	82	2	3C144-	88	-8	1.03	-17	-1.11	1706.15
810317	76	2	419	13	421	13	3	3C144	87	-8	1.03	-17	-1.18	1706.20
	76	3	441	66	356	74	2	3C161	100	-15	1.09	-13	-0.66	1706.19
	76	22	336	13	352	31	4	3C48	42	17	0.67	-41	-5.01	1706.33
810318	77	1	652	135	625	211	2	3C147	89	0	1.04	-15	-1.04	1706.29
	77	2	445	46	497	37	2	3C144	86	-8	1.02	-16	-1.15	1706.24
	77	3	455	12	419	51	2	3C161	99	-15	1.09	-14	-0.76	1706.23
	77	22	375	59	341	19	2	3C48	42	18	0.67	-41	-4.81	1706.38
810319	78	1	470	66	491	115	2	3C147	88	0	1.03	-125	-9.34	1706.59
	78	2	435	13	438	18	3	3C144	85	-8	1.02	-16	-1.17	1706.28
	78	3	460	33	449	17	3	3C161	98	-15	1.08	-13	-0.71	1706.27
	78	10	341	14	302	12	2	3C295	121	5	1.18	0	0.98	1706.17
	78	17	572	46	502	95	2	3C409	59	18	0.86	19	0.91	1706.26
	78	22	456	37	422	43	3	3C48	41	19	0.66	-43	-4.69	1706.44
810320	79	2	350	11	429	14	3	3C144	84	-8	1.01	-17	-1.23	1706.28
	79	3	421	19	273	61	2	3C161	97	-15	1.08	-13	-0.71	1706.30
	79	21	330	31	394	37	2	3C48	40	19	0.64	-43	-5.34	1706.44
	79	23	365	40	406	45	2	3C144-	84	-8	1.01	-17	-1.23	1706.32
810321	80	2	377	12	374	22	3	3C144	83	-8	1.01	-17	-1.30	1706.33
	80	3	430	43	458	13	2	3C161	96	-15	1.07	-13	-0.69	1706.34
	80	21	440	12	425	16	3	3C48	39	20	0.63	-43	-4.84	1706.52
810322	81	2	304	52	377	82	2	3C144	82	-8	1.00	-18	-1.35	1706.32
	81	21	400	15	397	13	4	3C48	38	21	0.62	-43	-5.11	1706.55
	81	23	337	18	360	39	3	3C144-	82	-8	1.00	-18	-1.35	1706.38
810323	82	0	284	12	243	10	2	3C147	85	0	1.02	-16	-1.10	1706.33
	82	2	315	10	312	9	4	3C144	81	-8	1.00	-16	-1.29	1706.37
	82	4	336	14	284	39	2	3C144+	81	-8	1.00	-16	-1.30	1706.39
	82	21	377	11	371	11	4	3C48	38	22	0.62	-45	-5.31	1706.58
	82	23	422	16	420	30	3	3C144-	81	-8	1.00	-18	-1.38	1706.46
810324	83	0	357	38	387	28	2	3C147	84	0	1.01	-14	-1.05	1706.42
	83	2	418	10	417	10	4	3C144	80	-8	0.99	-17	-1.35	1706.46
	83	3	354	9	363	22	3	3C161	94	-15	1.06	-14	-0.79	1706.41
	83	4	364	40	417	63	2	3C196	108	0	1.13	-13	-0.34	1706.40
	83	4	454	15	465	16	3	3C144+	80	-8	0.99	-16	-1.30	1706.48
	83	13	360	38	326	50	2	3C368	92	3	1.05	15	1.35	1706.35
	83	17	342	15	347	65	2	3C409	62	15	0.88	18	0.70	1706.37
	83	21	487	13	485	32	3	3C48	37	23	0.60	-45	-4.96	1706.65
	83	23	455	24	456	24	2	3C144-	80	-8	0.99	-17	-1.36	1706.51
810325	84	1	526	18	512	19	4	3C144	80	-8	0.99	-18	-1.42	1706.53
	84	3	413	9	407	9	3	3C161	93	-15	1.06	-14	-0.87	1706.48
	84	4	404	42	392	33	2	3C196	107	0	1.12	-13	-0.44	1706.46
	84	4	615	54	547	19	2	3C144+	79	-8	0.99	-17	-1.36	1706.55
	84	5	404	8	389	8	3	3C216	119	-1	1.18	-11	-0.06	1706.45
	84	10	366	27	389	12	2	3C295	121	6	1.18	-1	0.83	1706.41
	84	17	680	23	681	53	2	3C409	63	14	0.89	17	0.98	1706.50
	84	21	569	20	575	32	3	3C48	36	24	0.59	-46	-4.86	1706.70
	84	23	570	32	586	23	2	3C144-	79	-8	0.99	-17	-1.37	1706.57
810326	85	0	758	54	737	37	2	3C147	82	0	1.00	-15	-1.17	1706.60
	85	1	619	20	629	20	4	3C144	79	-8	0.99	-17	-1.34	1706.59
	85	3	551	12	579	22	3	3C161	92	-15	1.05	-14	-0.95	1706.56
	85	3	749	48	677	28	2	3C196	107	0	1.12	-12	-0.67	1706.58

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	85	4	568	58	574	40	2	3C144+	78	-8	0.98	-17	-1.38	1706.58
	85	5	758	16	797	39	3	3C216	118	-1	1.17	-11	-0.48	1706.58
	85	5	457	31	457	10	2	3C222	138	-9	1.24	-8	0.32	1706.49
	85	18	368	25	287	19	2	3C446	30	6	0.50	59	1.91	1706.42
	85	21	425	17	402	30	3	3C48	35	25	0.57	-46	-5.36	1706.71
810327	86	1	335	35	445	149	2	3C144	78	-8	0.98	-17	-1.39	1706.53
	86	2	215	51	229	17	2	3C161	91	-15	1.05	-14	-0.70	1706.39
	86	19	436	57	529	97	2	3C459	18	27	0.31	67	2.10	1706.48
810328	87	1	539	48	453	60	2	3C144	77	-8	0.98	-17	-1.41	1706.65
	87	2	388	51	398	50	2	3C161	90	-15	1.04	-15	-0.93	1706.58
	87	18	308	24	291	14	2	3C446	32	6	0.53	57	1.46	1706.47
	87	21	388	11	399	22	2	3C48	34	27	0.56	-47	-5.70	1706.78
	87	23	317	37	313	50	2	3C144-	76	-8	0.97	-18	-1.55	1706.59
810329	88	1	330	13	370	28	3	3C144	76	-8	0.97	-18	-1.55	1706.60
	88	3	394	70	486	71	2	3C161	89	-15	1.04	-14	-0.93	1706.62
	88	16	306	49	309	15	2	3C409	66	12	0.91	16	0.66	1706.53
	88	18	523	22	441	48	2	3C446	33	5	0.54	56	2.58	1706.56
810330	89	1	390	16	377	16	2	3C144	75	-8	0.97	-17	-1.51	1706.67
	89	2	347	7	342	7	3	3C161	88	-15	1.03	-14	-0.89	1706.63
	89	17	444	33	437	88	2	3C446	34	5	0.56	56	2.32	1706.58
	89	21	449	19	377	11	3	3C48	32	29	0.53	-47	-5.58	1706.88
	89	23	353	15	402	17	2	3C144-	74	-8	0.96	-17	-1.56	1706.69
810331	90	0	439	37	459	17	2	3C147	78	1	0.98	-15	-1.28	1706.72
	90	1	405	18	391	17	3	3C144	74	-8	0.96	-18	-1.56	1706.72
	90	2	452	13	450	9	3	3C161	88	-15	1.03	-15	-1.01	1706.72
	90	4	253	17	225	11	2	3C144+	73	-8	0.96	-16	-1.60	1706.62
	90	21	443	32	434	53	3	3C48	31	30	0.52	-47	-5.64	1706.91
	90	23	305	19	301	19	2	3C144-	73	-8	0.96	-17	-1.56	1706.70
810401	91	1	421	36	341	14	3	3C144	73	-8	0.96	-17	-1.54	1706.76
	91	4	497	58	434	22	2	3C144+	72	-8	0.95	-17	-1.55	1706.79
	91	6	390	21	429	126	2	3C237	140	-8	1.24	-9	0.46	1706.68
	91	17	407	15	423	99	2	3C446	36	5	0.59	53	2.10	1706.65
	91	21	434	40	418	19	2	3C48	31	31	0.52	-48	-5.73	1706.95
	91	22	270	19	363	45	2	3C144-	72	-8	0.95	-18	-1.74	1706.71
810402	92	0	323	39	387	36	2	3C147	76	1	0.97	-15	-1.37	1706.74
	92	1	396	48	378	79	3	3C144	72	-8	0.95	-17	-1.59	1706.79
	92	2	299	45	292	26	2	3C161	86	-15	1.02	-15	-1.00	1706.71
	92	17	479	49	474	37	2	3C446	37	4	0.60	53	2.40	1706.70
	92	19	209	35	194	57	2	3C459	23	20	0.39	64	-0.64	1706.63
	92	20	416	35	416	14	2	3C48	30	32	0.50	-48	-5.91	1706.98
	92	22	337	19	353	47	2	3C144-	71	-8	0.95	-19	-1.81	1706.80
810403	93	0	432	73	329	45	2	3C147	75	1	0.97	-130	-10.07	1707.15
	93	1	336	15	357	14	3	3C144	71	-8	0.95	-19	-1.75	1706.80
	93	17	521	53	442	50	2	3C446	38	4	0.62	51	2.49	1706.74
	93	19	312	50	265	14	2	3C459	24	19	0.41	62	1.16	1706.71
	93	20	445	16	413	15	3	3C48	29	33	0.48	-47	-5.77	1707.03
	93	22	260	43	270	45	2	3C144-	70	-8	0.94	-19	-1.93	1706.78
810404	94	1	390	15	381	14	3	3C144	70	-8	0.94	-21	-1.89	1706.87
	94	2	430	12	454	10	3	3C161	84	-15	1.01	-14	-1.07	1706.86
	94	3	362	23	383	108	2	3C144+	70	-8	0.94	-20	-1.88	1706.86
	94	19	389	13	379	45	2	3C459	25	18	0.42	62	1.88	1706.76
	94	21	372	17	380	18	3	3C48	29	35	0.48	-49	-6.29	1707.05
810405	95	0	358	14	267	9	2	3C147	73	1	0.96	-15	-1.41	1706.87
	95	1	281	30	310	21	3	3C144	69	-8	0.93	-21	-2.08	1706.85
	95	2	305	14	316	17	2	3C161	83	-15	1.01	-14	-1.02	1706.83
	95	3	293	26	183	16	2	3C144+	69	-8	0.93	-21	-2.03	1706.86
	95	4	236	51	226	36	2	3C216	109	0	1.13	-12	0.07	1706.73
	95	6	339	36	455	35	2	3C237	136	-8	1.23	-10	0.50	1706.80
	95	17	302	31	327	25	2	3C446	40	4	0.64	49	1.49	1706.76
	95	22	328	34	336	32	2	3C144-	68	-8	0.93	-22	-2.11	1706.91
810406	96	1	298	24	344	66	2	3C144	68	-8	0.93	-22	-2.15	1706.90
	96	2	430	11	489	67	2	3C161	82	-15	1.00	-15	-1.15	1706.93
	96	17	459	34	448	44	2	3C446	41	4	0.66	47	2.16	1706.84

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	96	19	358	37	381	14	2	3C459	27	17	0.45	60	1.70	1706.83
	96	20	398	17	372	21	2	3C48	28	37	0.47	-48	-6.19	1707.13
	96	22	317	19	346	58	2	3C144-	67	-8	0.92	-23	-2.23	1706.95
810407	97	2	429	25	383	14	3	3C161	82	-15	1.00	-15	-1.16	1706.97
	97	17	399	81	371	49	2	3C446	42	4	0.67	48	2.08	1706.86
	97	18	410	65	390	62	2	3C459	28	16	0.47	59	2.05	1706.87
	97	20	459	13	465	23	2	3C48	27	39	0.45	-48	-5.87	1707.18
	97	22	448	*	438	*	2	3C144-	66	-8	0.91	-24	-2.18	1707.05
	97	23	526	*	523	*	2	3C147	71	2	0.95	-17	-1.49	1707.04
810408	98	1	416	10	438	38	2	3C144	66	-8	0.91	-24	-2.28	1707.04
	98	2	527	*	530	*	2	3C161	81	-15	1.00	-14	-1.11	1707.04
	98	3	524	*	536	*	2	3C196	95	1	1.07	-15	-0.90	1707.03
	98	3	421	*	458	*	2	3C144+	66	-8	0.91	-24	-2.22	1707.05
810409	99	1	382	32	386	31	2	3C144	65	-8	0.91	-26	-2.45	1707.07
	99	2	478	48	449	40	2	3C161	80	-15	0.99	-15	-1.17	1707.06
	99	3	520	77	517	116	2	3C196	94	1	1.06	-15	-0.93	1707.06
	99	3	315	33	328	17	2	3C144+	65	-8	0.91	-25	-2.50	1707.04
	99	4	520	17	542	46	2	3C216	105	0	1.12	-13	-0.62	1707.06
	99	17	332	24	382	14	2	3C446	44	3	0.69	46	1.74	1706.92
	99	23	270	14	246	18	2	3C147	69	3	0.93	-18	-1.89	1707.01
810410	100	1	362	14	346	13	3	3C144	64	-8	0.90	-26	-2.56	1707.10
	100	2	339	18	314	80	2	3C161	79	-15	0.99	-14	-1.17	1707.04
	100	3	294	46	374	53	2	3C144+	64	-8	0.90	-26	-2.62	1707.06
	100	17	262	17	255	14	2	3C446	45	3	0.71	44	1.23	1706.91
	100	22	568	40	587	30	3	3C144-	63	-8	0.89	-27	-2.44	1707.20
	100	23	392	30	415	32	2	3C147	68	3	0.93	-19	-1.79	1707.12
810411	101	3	351	30	344	18	2	3C144+	63	-8	0.89	-27	-2.65	1707.14
	101	16	517	41	513	35	2	3C409	74	7	0.96	12	0.72	1707.10
	101	17	431	26	491	20	2	3C446	46	3	0.72	44	2.05	1707.02
	101	20	528	125	586	49	2	3C48	25	45	0.42	-46	-5.57	1707.34
	101	22	416	16	414	16	3	3C144-	62	-8	0.88	-28	-2.65	1707.20
	101	23	417	27	401	17	2	3C147	67	4	0.92	-20	-1.89	1707.17
810412	102	0	446	34	407	15	3	3C144	62	-8	0.88	-28	-2.66	1707.21
	102	1	410	10	430	10	4	3C161	77	-15	0.98	-14	-1.20	1707.15
	102	2	514	42	507	20	2	3C196	92	1	1.05	-15	-0.97	1707.17
	102	3	366	12	341	11	2	3C144+	62	-8	0.88	-28	-2.74	1707.19
	102	3	522	27	508	13	3	3C216	103	0	1.11	-14	-0.69	1707.17
	102	4	551	23	551	32	2	3C222	122	-9	1.19	-11	-0.27	1707.16
	102	5	520	8	516	9	3	3C237	129	-7	1.21	-11	-0.09	1707.15
	102	8	519	10	519	10	2	3C295	118	7	1.17	-3	0.35	1707.14
	102	16	540	41	562	96	3	3C409	75	7	0.97	12	0.72	1707.14
	102	18	465	26	395	10	3	3C459	32	13	0.53	56	2.29	1707.06
810413	103	0	628	48	645	49	3	3C144	61	-8	0.87	-29	-2.58	1707.29
	103	1	555	9	563	9	4	3C161	76	-15	0.97	-15	-1.23	1707.23
	103	2	582	30	592	19	3	3C196	91	1	1.05	-15	-1.00	1707.23
	103	3	508	23	486	62	2	3C144+	61	-8	0.87	-30	-2.75	1707.27
	103	4	384	41	405	30	2	3C222	121	-9	1.18	-11	0.00	1707.13
	103	5	379	30	501	16	2	3C237	128	-7	1.21	-12	0.09	1707.13
	103	12	378	42	420	29	2	3C368	108	4	1.13	11	1.44	1707.09
	103	18	518	33	578	22	2	3C459	33	13	0.54	55	2.47	1707.11
	103	22	365	23	443	28	2	3C144-	60	-8	0.87	-29	-2.90	1707.26
810414	104	0	431	40	472	26	3	3C144	60	-8	0.87	-30	-2.88	1707.29
	104	1	650	15	657	15	4	3C161	76	-15	0.97	-14	-1.20	1707.28
	104	2	254	38	337	48	2	3C196	90	1	1.04	-14	-0.81	1707.11
	104	3	453	24	461	32	2	3C216	101	0	1.10	-14	-0.70	1707.22
	104	4	425	24	466	15	2	3C222	120	-9	1.18	-12	-0.14	1707.19
	104	5	431	78	390	64	2	3C237	127	-7	1.20	-11	0.00	1707.19
	104	18	314	17	366	20	2	3C459	34	12	0.56	54	1.42	1707.10
	104	20	591	58	514	41	2	3C48	23	50	0.39	-42	-5.12	1707.44
	104	22	389	43	356	39	2	3C144-	59	-8	0.86	-31	-3.04	1707.31
810415	105	0	422	22	417	21	3	3C144	59	-8	0.86	-30	-2.97	1707.33
	105	1	403	13	495	177	2	3C161	75	-15	0.97	-14	-1.28	1707.26
	105	3	421	19	449	16	3	3C144+	59	-8	0.86	-31	-2.98	1707.33

SOLAR WIND

Interplanetary Scintillations

JANUARY-APRIL 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	105	5	312	45	238	69	2	3C237	126	-7	1.20	-11	0.32	1707.16
	105	16	477	30	425	84	2	3C446	50	2	0.77	40	2.08	1707.18
	105	18	463	65	421	19	2	3C459	35	12	0.57	53	2.27	1707.17
	105	20	611	19	633	19	3	3C48	23	51	0.39	-40	-4.94	1707.48
810416	106	0	421	42	460	46	2	3C144	58	-8	0.85	-32	-3.13	1707.37
	106	2	334	18	597	420	2	3C196	88	1	1.03	-15	-0.95	1707.25
	106	3	493	50	414	65	3	3C144+	58	-8	0.85	-32	-3.02	1707.39
	106	4	356	45	394	15	2	3C222	118	-9	1.17	-12	-0.07	1707.23
	106	5	335	15	325	14	2	3C237	125	-7	1.20	-11	0.20	1707.21
	106	16	450	30	462	19	2	3C446	51	2	0.78	39	2.00	1707.22
	106	21	530	26	509	25	3	3C144-	57	-8	0.84	-32	-3.06	1707.43
	106	23	497	39	471	15	3	3C147	63	6	0.89	-24	-2.23	1707.39
810417	107	0	493	25	487	20	3	3C144	57	-8	0.84	-33	-3.17	1707.43
	107	1	355	31	372	11	3	3C161	73	-15	0.96	-14	-1.30	1707.31
	107	18	422	31	470	24	2	3C459	37	11	0.60	50	2.03	1707.24
	107	20	412	36	417	20	3	3C48	22	55	0.37	-37	-5.65	1707.52
810418	108	0	451	18	448	18	3	3C144	56	-8	0.83	-34	-3.29	1707.46
	108	1	445	10	422	10	3	3C161	72	-15	0.95	-14	-1.30	1707.38
	108	2	466	25	442	85	2	3C144+	56	-8	0.83	-33	-3.24	1707.46
	108	8	522	23	554	24	2	3C295	117	7	1.17	-4	0.22	1707.36
	108	15	611	142	482	68	2	3C409	79	8	0.99	12	0.82	1707.37
	108	20	553	29	715	71	2	3C48	22	56	0.37	-34	-4.73	1707.57
	108	23	359	22	374	13	2	3C147	61	7	0.87	-25	-2.61	1707.43
810419	109	0	508	25	510	28	3	3C144	55	-8	0.82	-34	-3.28	1707.51
	109	1	411	13	437	14	4	3C161	71	-16	0.95	-15	-1.42	1707.41
	109	2	465	69	417	70	2	3C144+	55	-8	0.82	-35	-3.40	1707.51
	109	3	452	13	460	13	2	3C216	97	0	1.08	-15	-0.86	1707.41
	109	4	478	20	471	18	2	3C222	115	-9	1.16	-12	-0.33	1707.40
	109	5	468	11	475	11	2	3C237	122	-7	1.19	-13	-0.26	1707.39
	109	8	351	10	296	83	2	3C295	116	7	1.16	-5	0.46	1707.32
	109	16	356	56	426	33	2	3C446	54	2	0.81	37	1.74	1707.30
	109	18	397	44	652	101	2	3C459	39	11	0.63	50	1.98	1707.31
	109	20	441	13	468	45	3	3C48	22	58	0.37	-31	-5.05	1707.59
	109	23	612	46	576	26	2	3C147	61	8	0.87	-27	-2.43	1707.54
810420	110	0	553	47	573	16	3	3C144	54	-8	0.81	-35	-3.36	1707.56
	110	1	533	18	503	12	3	3C161	71	-16	0.95	-16	-1.45	1707.49
	110	2	482	19	426	28	2	3C144+	54	-8	0.81	-36	-3.48	1707.55
	110	3	415	31	408	18	2	3C216	96	1	1.07	-14	-0.77	1707.43
	110	4	447	12	365	12	2	3C222	114	-9	1.16	-13	-0.37	1707.43
	110	5	469	24	491	38	2	3C237	121	-7	1.18	-11	-0.18	1707.43
	110	18	388	17	320	82	2	3C459	40	10	0.64	49	1.95	1707.34
	110	19	470	14	498	28	3	3C48	22	59	0.37	-29	-4.72	1707.62
	110	21	411	68	509	60	2	3C144-	53	-8	0.80	-37	-3.77	1707.56
810421	111	0	568	64	603	28	2	3C144	53	-8	0.80	-37	-3.50	1707.61
	111	2	456	26	471	176	2	3C144+	53	-8	0.80	-37	-3.63	1707.58
	111	3	677	160	484	93	2	3C216	95	1	1.07	-14	-0.93	1707.54
	111	16	360	17	388	30	2	3C446	56	2	0.83	34	1.65	1707.37
	111	19	464	21	493	23	3	3C48	22	60	0.37	-25	-4.46	1707.64
	111	21	508	36	516	33	2	3C144-	52	-8	0.79	-37	-3.59	1707.63
	111	23	399	18	401	18	4	3C161	69	-17	0.93	-17	-1.63	1707.52
810422	112	2	588	45	609	52	2	3C144+	52	-8	0.79	-38	-3.62	1707.65
	112	16	709	56	526	40	2	3C446	57	2	0.84	33	2.07	1707.49
	112	17	402	29	1095	54	2	3C459	42	10	0.67	47	1.96	1707.42
	112	19	592	32	709	21	2	3C48	21	62	0.36	-20	-3.60	1707.68
810423	113	0	388	31	526	40	2	3C144	51	-8	0.78	-39	-4.04	1707.64
	113	18	474	15	425	43	2	3C459	43	9	0.68	45	2.14	1707.48
	113	19	519	44	549	42	2	3C48	21	62	0.36	-16	-3.59	1707.70
	113	21	365	38	376	26	2	3C144-	50	-8	0.77	-39	-4.19	1707.67
810424	114	0	486	33	401	15	2	3C144	50	-8	0.77	-39	-3.90	1707.71
	114	1	304	11	400	76	2	3C161	67	-18	0.92	-19	-1.95	1707.56
	114	2	386	35	576	134	2	3C144+	50	-8	0.77	-39	-4.14	1707.69
	114	17	449	51	494	113	2	3C459	44	9	0.69	45	2.07	1707.51
	114	19	764	25	730	23	2	3C48	21	63	0.36	-12	-2.51	1707.74

SOLAR WIND

Interplanetary Scintillations

JANUARY-APRIL 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	114	23	404	16	447	18	3	3C144	49	-8	0.75	-40	-4.23	1707.73
810425	115	1	348	17	331	10	2	3C161	66	-19	0.91	-19	-1.94	1707.62
	115	2	226	43	326	26	2	3C144+	49	-8	0.75	-41	-5.13	1707.63
	115	23	289	31	340	45	2	3C144	48	-8	0.74	-41	-4.77	1707.72
810426	116	0	395	35	360	29	2	3C161	66	-19	0.91	-20	-1.98	1707.68
	116	2	311	21	331	22	2	3C144+	48	-8	0.74	-42	-4.77	1707.74
	116	19	454	18	517	21	3	3C48	21	64	0.36	-2	-2.81	1707.77
	116	21	412	22	418	22	3	3C144-	47	-8	0.73	-42	-4.44	1707.81
810427	117	21	348	24	348	24	3	3C144-	46	-8	0.72	-43	-4.82	1707.83
810428	118	2	341	14	313	13	3	3C144+	46	-8	0.72	-43	-4.85	1707.84
	118	2	393	17	376	39	2	3C216	89	1	1.04	-15	-1.02	1707.72
	118	19	323	28	439	52	3	3C48	22	64	0.37	7	-3.11	1707.79
	118	21	387	66	393	18	3	3C144-	45	-8	0.71	-44	-4.81	1707.89
	118	23	344	12	354	28	2	3C144	45	-8	0.71	-44	-4.95	1707.87
810429	119	0	428	10	421	10	3	3C161	63	-21	0.89	-21	-2.07	1707.81
	119	2	316	70	374	70	2	3C144+	45	-8	0.71	-44	-5.13	1707.87
	119	19	560	23	533	22	2	3C48	22	63	0.37	12	-1.20	1707.84
	119	21	394	28	330	27	2	3C144-	44	-9	0.69	-45	-4.87	1707.93
	119	23	397	45	328	48	2	3C144	44	-9	0.69	-45	-4.91	1707.93
810430	120	17	426	12	404	11	3	3C459	49	8	0.75	39	1.84	1707.72
	120	19	466	23	531	18	3	3C48	22	63	0.37	17	-1.27	1707.86
	120	21	282	23	257	21	2	3C144-	43	-9	0.68	-46	-5.61	1707.92

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

PIONEER XII

FEBRUARY 1981

DATE FEB '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	1205	142.	403.	12.5	0.119
2	1906		423.	16.8	---
3	1452		379.	17.6	.109
4	1256		400.	75.5	.045
5	2251		421.	15.3	.113
6	1403		435.	15.9	.071
7	2105		365.	26.9	.135
8	2103		404.	20.3	.217
9	1618		400.	16.2	.183
10	1302		482.	17.4	.18
11	1501		363.	17.7	.11
12	1506		519.	11.7	.211
13	2156		517.	6.9	.076
14	2240		517.	1.6	.076
15	1601	150.	606.	9.9	.164
16	1705		480.	8.5	.194
17	2211		361.	17.2	.018
18	0142		356	45.	.017
19	2255		338.	19.	.153
20	2153		406.	33.4	.172
21	2114		391.	4.2	.195
22	0751		396.	6.9	.152
23	0553		424.	13.5	.042
24	2259		362.	13.7	.063
25	2009		306.	22.	.112
26	0239		318.	20.3	.057
	2230		312.	26.7	.058
27	1550		282.	41.	.011
28	0117		276.	53.	.061
	1802		311.	61.	.028

PIONEER XII

MARCH 1981

DATE MAR '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	1955	158.	326.	29.4	0.119
2	---				
3	0239		410.	13.2	.276
4	0145		359.	9.9	.091
5	0202		352.	12.1	.069
6	0213		350.	21.6	.111
7	0137		419.	22.4	.098
8	0128		305.	20.1	.013
9	0231		322.	45.1	.031
10	0558		471.	20.1	.16
11	1602		552.	9.2	.253
12	0132		569.	11.4	.215
13	0950		552.	8.8	.014
14	0231		453.	7.5	.019
15	---	166.	---	---	---
16	0949		453.	---	---
17	0405		639.	37.9	.129
18	---		---	---	---
19	1153		428.	8.9	.057
20					

VENUS

UNDERGOING

SUPERIOR

CONJUNCTION.

PIONEER XII

APRIL 1981

DATE APR '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1		184.			
2					
3					
4					
5		VENUS			
6					
7			UNDERGOING		
8					
9			SUPERIOR		
10					
11				CONJUNCTION	
12					
13					
14					
15		175.			
16					
17					
18					
19	1722		695	---	---
20	1214		632.	5.8	0.404
21	2344		457.	20.5	.309
22	1434		344.	9.3	.107
23	1318		369.	23.1	.086
24	1229		319.	23.6	.12
25	2041		408.	13.7	.173
26	1615		443.	16.9	.157
27	2131		462.	17.1	.28
28	1934		528.	9.8	.199
29	1940		461.	12.1	.317
30	1844		399.	64.5	.122

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1981

DAY	UNIVERSAL TIME START	UNIVERSAL TIME END	UNIVERSAL TIME MAX	UNIVERSAL TIME IMP	WIDE SPREAD INDEX	SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0030	0100D	0040	1-	3	1			2	1			NF	
01	0059	0126	0106	1-	3	1			1				0058	No data
01	0434	0514	0448	1-	3				2				0426	No data
01	1112	1128	1115	1	3	1		1		1			NF	
01	1438	1510	1448	1-	3	1		1		1			1438	No data
01	1634	1700	1636	1	3						11		1636	No data
01	2212	2306D	2231	1-	3				1		1		*	
02	0045	0113	0050	1-	3	1			1	1			0047	No data
02	0118	0140	0123	1-	1					1			0120	17483
02	0423	0443D	0426	1-	3				2	1			*	
02	0450	0508D	0458	1-	3				1	1			0451	No data
02	0508E	0544	0514	1-	3				1	1			0508	17491
02	0602	0640	0610	1-	3				1	1			*	
02	0741	0824	0750	1-	3				1	1			*	
02	0950	1020	0954	1-	1			1					0946E	17491
02	1224	1310	1238	1	5			3	1	1			NF	
02	1314	1340	1322	1-	3			1		1			*	
02	1433	1500	1442	1-	5	2		3		1	8		*	
02	1843	1909	1843D	1-	5	2			1		15		*	
02	2114	2156	2122	1	5	2			1		14		2112	17487
02	2232E	2307D	2239	2	5	2			1		6		*	
02	2307E	0016	2312	1-	1				1				*	
03	0202	0239	0209	1-	3	1			1	1			NF	
03	0333	0426	0343	1-	3	1			1	1			0334E	17483
03	0512	0606	0535	1-	3				1	1			NF	
03	0954	1010	1000	1-	3	1				1			NF	
03	1056	1125	1102	1-	3	1		3	1	1			*	
03	1253	1355	1310	1	5	2		4		1	3		NF	
04	0119	0133	0123	1-	3	1			2	1			0119	17501
04	0154	0251	0211	1-	3				2	1			0155	17483
04	0204	0225	0210	1-	3	1			1	1			0155	17483
04	0437	0522	0444	1-	3				2	1	1		*	
04	0800	0820	0806	1-	3	1		1	1	1			0802E	17483
04	0930	1035	0950	1	3	1			1	1			*	
04	1435	1443	1437	1-	5	2		2		1	2		*	
04	1542	1600	1547	1-	3						5		1543E	17491
04	1715	1808	1740	2+	3						18		NF	
04	1808	1815	1830	1	3	1					7		NF	
04	1937	2000	1943	1	3						7		1934	17491
04	2038	2130	2048	1	3						4		*	
04	2237	2300	2239	1-	1				1				2238	17491
05	0105	0156D	0118	1-	5				1	1	3		*	
05	0138	0148U	0141	1-	1					1			0137	17502
05	0156E	0257	0221	1-	3				1	1			*	
05	0422	0550D	0444	2	5				2	1	3		0425E	17481
05	0438	0508D	0445	1-	3	1				1			0435	17493
05	0648	0900	0726	2+	3				1	1	1		NF	
05	0711	0730	0715	1	3				1	1			0709	17498
05	1545	1630	1553	2	3	2		1		1			*	
05	1730	1800	1734	1+	3						8		1736E	17497
05	2105	2224	2128	1	5	1			1		7		2105E	17497
05	2253	2330	2306	1+	3						3		NF	
06	0135	0158D	0144	1-	5			1	2	1			NF	
06	0158E	0237D	0211	1	5	1			1	1	5		NF	
06	0236E	0407	0250	2+	5	2			1	1	5		0244	No data
06	0304	0340	0310	1	3						6		*	
06	1215	1225	1221	1-	3	1				1			*	
06	1620	1700	1632	1+	3						12		*	
06	1822	1836D	1829	1	3						4		NF	
06	1836	1855D	1844	1	3						5		*	
06	1857	1930	1901	1-	3						4		*	
06	1937	2002	1943	1-	3				1		4		NF	
06	2157	2243D	2208	1	3						4		*	
07	0151	0211	0155	1-	1				1				0159E	17512
07	0613	0638D	0638	2	5				2	1	4		0613E	17492
07	1740	1830	1800	2	3						7		*	
07	1901	2000	1915	1+	3						5		2248	17497
07	2249	2319	2253	1-	1				1				NF	

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DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
08	0113	0147	0130	1-	3	1			1	1			0111	17493
08	0158	0352	0221	1	5	1			1	1	1		0157	17512
08	0207	0451	0224	1	5				2	1	3		0207	17513
08	0746	0800	0749	1	3				1	2			0741	17503
08	1600	1622D	1615	1	3						7		NF	
08	1622	1700	1633	1	3						6		1625	17512
08	1853	1930	1902	1+	3	1					7		1853	17512
08	2018	2100	2040	2	3						8		NF	
08	2232	2312	2240	1-	1				1				2233	17498
09	0151	0211	0156	1-	3	1			1	1			0145	17512
09	0243	0314	0247	1-	3	1			1	1			0251E	17513
09	0610	0638	0618	1-	3				1	1			0612	17513
09	1029	1050	1039	1-	3	1				1			NF	
09	1226	1245	1229	1-	3			1		1			NF	
09	1630	1700	1640	2	3						7		NF	
09	1851	1928	1900	2+	3	2					15		1854E	17511
09	1932	2020	1943	1+	3						8		*	
10	0242	0311	0247	1-	3	1			2	1			0243	17512
10	0832	0840	0835	1	5	1		2	1	1	3		0834E	17513
10	1343	1400	1346	1-	3	1		1		1			*	
10	1412	1500D	1429	2+	3						5		*	
'11	0018	0045	0025	1-	3				1	1			0018	17518
11	0113	0154	0126	1-	3				1	1			0114	17498
11	0325	0340	0327	1-	1					1			0324	17513
11	0952	1030	1006	1-	1			1		1			0945	17501
11	1707	1730	1715	1	3						9		1707	17512
11	1751	1810	1756	1-	3						7		1750	17498
11	1847	2000	1900	1+	3	1					5		1846	17514
11	2102	2145	2114	1	3						4		2101	17505
12	0135	0200	0144	1-	3				1	1			0135	17514
12	0303	0334	0312	1-	3				2	1			0304	17514
12	0407	0432	0411	1-	3				1	1			0408	17514
12	0534	0621	0545	1-	3				2	1			NF	
12	0649	0710	0653	1-	1					1			0646E	17512
12	1752	1836	1800	1+	3	2					10		1751	17512
12	2241	2303	2243	1-	3				1		3		*	
13	0932	0955	0936	1-	3	1		1	1	1			0931	17514
13	1645	1824D	1717	2+	3						6		1652	17511
13	1811	1915	1830	1+	3	1					10		1810	17511
13	1938	2000	1943	1	3	1					14		1932	17511
13	2058	2200	2107	1	5	3			1		14		2056	No data
13	2233	2311	2243	1-	5				1		5		2236	No data
13	2310E	0052	2330	2+	5	3			2		8		2311	No data
14	0219	0244D	0224	1-	3				2				*	
14	0242E	0305	0250	1-	3	1			1				*	
14	0318E	0400	0323	1-	3				1	1			0319E	No data
14	0650	0716	0654	1-	3				1	1			*	
14	0737	0806	0740	1-	3			1	1	1			NF	
14	0934	0950	0940	1-	3	1		1	1	1			NF	
14	1029	1040	1031	1-	3			3		1			NF	
14	1405	1415	1408	1-	3	1				1			*	
14	1516	1530	1523	1-	5	2		1		1	9		*	
14	1713	1800	1729	2	3	1					5		1712	No data
14	1838	1915	1852	1	3						4		1832	No data
14	1936	2055	1945	2	3	1					14		*	
14	2347	0025	2350	2+	5	3			2	1	8		2347	No data
15	0127	0148D	0137	1-	3	1		1	1				NF	
15	0147	0306	0204	2+	5	2			2	1	5		0153E	17512
15	0253	0317D	0300	1	3						2		0250	17512
15	0315	0621	0419	2+	5	1			1	1	3		*	
15	0901	1035	0920	3	5	3		4	1	1	3		*	
15	1123	1150	1134	1-	3	1		2		1			*	
15	1343	1348D	1348	2	5	1		1		1	3		*	
15	1412	1435	1418	1+	5	3		4		1	8		*	
15	1732	2000	1745	2	3	1					11		NF	
15	1752	1840	1804	2+	3						12		*	
15	2203	2226	2209	1-	3					1	6		*	

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DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
16	2149	2226	2154	1-	3	1			1		7		2150	17532
16	2307	0008	2325	1-	3				1		4		2306	17532
17	0222	0251	0239	1-	3				1	1			*	
17	0258	0412	0316	1-	3			1	2	1			NF	
17	0321	0351D	0324	1	1					1			0321	17512
17	0708	0720	0712	1-	3	1			2	1			NF	
17	0756	0841	0805	1-	3			1	1	1			*	
18	0040	0100	0042	1-	3				1	1			0042E	17528
18	0203	0239	0213	1-	3	1			1	1			0201	17528
18	0518	0540	0521	1-	1					1			0518	17528
18	0948	1030	0953	1-	5	3		3	1	1			*	
18	1400	1420	1405	1-	5	1		1		1	4		*	
18	1821	1845	1825	1-	3	1					11		1829E	17533
18	1859	1918	1903	1-	5	2			1		15		1859	17528
18	1948	2020	1950	1+	3	1					14		1948	17533
18	2035	2122	2048	1-	3		1		1		14		*	
19	0016	0048	0019	1-	3				2		1		NF	
19	1033	1045	1038	1-	3	1		2		1			*	
19	1330	1405	1333	1	5	2		6		1			1330	No data
19	2007	2100	2013	1	3						7		*	
19	2311	2326	2315	1-	3				1		3		2311	17528
20	0009	0030	0012	1-	3				2	1			NF	
20	0322	0430	0337	1	3				2	1			*	
20	0530	0556	0541	1-	3				2	1			NF	
20	0827	0835	0829	1-	5	1				2	3		NF	
20	1105	1155	1117	2	3	2		1	1	1			1103	No data
20	1308	1325	1311	1-	1					1			NF	
20	1832	1900	1839	1	3						13		*	
20	1958	2020	2003	1+	3						14		*	
20	2119	2135	2115	1	3						2		2111	No data
20	2258	2326	2307	1-	3				1		7		2300	No data
21	0027	0110	0031	1-	3	1			2		4		0027	No data
21	0218	0438	0248	1-	3	1			2	1	2		0131E	No data
21	0230E	0323D	0249	1	3	1			1	1	3		0233E	No data
21	0323E	0428	0347	1	3	1			1	1	3		0322E	No data
21	0344	0410	0348	1-	1					1			0344	No data
21	0434	0522D	0500	1-	3				1	1			0434	No data
21	0522E	0616	0526	1-	1				1				0525	No data
21	0631	0715	0640	1-	5	2			2	2	3		0625	No data
21	1259	1306D	1306	3	5	3		6	1	1	10		1256	No data
21	1332	1335D	1335	1-	5	2		1		1	13		1331	No data
21	1506	1525	1512	1-	5	1		3			11		1449	No data
21	1612	1615D	1615	3	5	4		4		1	14		1608	No data
21	2132	2152	2144	1-	3	1			1		8		2129E	No data
21	2143	2205	2145	1	3						13		*	
22	0204	0221	0207	1-	3				1	1			NF	
22	0325	0348	0329	1-	3	1				1			0322	No data
22	0606	0839	0630	1	3				2	1			*	
22	1150	1200	1155	1-	3	1		1		1			1143	No data
22	1220	1230	1223	1-	3			1		1			1221	No data
22	1431	1505	1438	2	5	1		5			11		1428	No data
22	1721	1805	1730	1+	3	1					17		1713	No data
22	1841	1928	1852	1-	3				1		16		1845	No data
22	1947	2030	1953	1+	5	2			1		17		1940	No data
22	2044	2104D	2048	1-	5	1			1		13		2043	No data
22	2145	2200D	2147	1-	5	1			1		12		NF	
22	2200E	2216D	2204	1	5	1					14		2158	No data
22	2216E	2256	2222	1	3	1			1		11		2216	No data
22	2342	0146	2357	3	5	4				1	6		2341	No data
22	0058	0108D	0100	1-	1					1			NF	
23	0106	0116D	0112	1-	1					1			0106	17535
23	0644	0857	0706	2+	5	4			2	1	5		0653E	17528
23	0704	0750	0708	1	3				1	1	1		0700E	17528
23	0736	0815	0745	1+	3						2		0734E	17537
23	1016	1108D	1023	2	5	3		6		1			NF	
23	1108E	1202D	1131	1-	5	3		5	1	1			1106	17537
23	1203	1250	1210	1	5	3		5	1	1	4		1203	17528
23	1422	1446	1433	1	3			2					1432E	17535
23	1734	1756	1741	1-	5	2			1		16		1735	17528
23	1928	1949	1935	1-	3	1			1		17		1927	17537
23	2115	2204	2120	1	5	2			1		12		2114	17528

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DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
24	0153	0251	0200	2+	5	3			2	1	4		NF	
24	0305E	0348D	0307	1-	3				1	1		.	NF	
24	0541	0610	0548	1-	1				1	1			NF	
24	0619	0708D	0626	1	5	1		2	2	1	4		0618	17528
24	0708	0834	0727	2	3			2	1	2	1		0711	17528
24	0906	0946D	0913	1	1					1			0902	17528
24	0943	0955	0947	1-	•1	1				1			0943	17528
24	1616	1645	1624	1	3						5		1612	17528
24	1731	1734D	1734	1	3	1					13		1730	17528
24	1900	1926	1906	1-	5	1			1		12		1901	17528
24	2220	2254	2225	1-	5				1		6		2219	17533
25	0057	0145	0104	1	5	1			1	1	5		0059	17535
25	0145	0222	0150	1-	3	1			1	1			0140	17537
25	0204	0220	0206	1-	1					1			0157	17535
25	0254	0344	0303	1-	3	1			1	1	4		0253	17535
25	0504	0836	0624	1	5	1			2	1	4		0506	17535
25	0524	0520	0528	1-	1					1			0524	17528
25	0609	0740D	0624	2+	3			2	1	1	5		0600	17535
25	0749	0820	0756	1	5	2		4	1	2	4		0750E	17536
25	0758	0820	0802	1	1						1		0753	17528
25	0840E	0939	0851	1	3	1		2	1	2			0843	17533
25	0919	0940	0922	1-	1			1		1			0917	17528
25	1606	1635	1617	1-	3						7		1601	17548
25	1840	1910	1843	1-	3						9		1839	17539
25	2039	2258	2050	3	5	5			1		14		2039	17528
26	0225	0258	0237	1-	3				1	1			0226E	17535
26	0417	0447	0422	1-	3				2	1			NF	
26	0616	0655	0625	1-	3	1			1	1			0625E	No data
26	0938	1011D	0947	1-	3	1		2	1	1			*	
26	1012	1055	1024	1-	3			2	1	1			NF	
26	1330	1405	1343	1-	3	1		3		1	4		*	
26	1443	1535	1454	1-	5			5		1	13		1442	17536
26	1530	1550	1535	1-	3						12		*	
26	1814	1835U	1821	2+	3	1				13			1813E	17536
26	1939	2025	1946	1+	3	1					14		1939	No data
26	2343	0452	0030	1	3	1			2	1	2		2344	No data
27	0010	0110D	0034	2	3			1		1	5		NF	
27	0156	0246D	0207	1	3				1	1	4		0154	17539
27	0223	0253D	0228	1-	3					1	4		NF	
27	0246E	0407D	0258	1	3	1			1		4		0245	17536
27	0407E	0520	0420	1-	3				1	1			0406	17539
27	0554	0632	0556	1-	3				1	1			0555	17533
27	0920	0935	0925	1-	3			1		1			0917	17531
27	1630	1700	1636	1	3						13		1627	17535
28	0007	0040	0012	1-	3				1	1			0006	17533
28	0413	0520	0419	2+	5	1		1	2	1	1		*	
28	0536	0714	0546	2+	5	2		1	1	2	4		0535	17539
28	1507	1532	1509	2	5	2		4			17		1507	No data
28	1930	2000	1935	1-	3						12		NF	
28	2120	2130	2122	1-	3						4		2119	17539
29	0011	0021D	0016	1-	1						4		0010E	17539
29	0020	0040	0023	1-	1						1		*	
29	0409	0453	0414	1-	3					1	1		*	
29	0714	0743	0719	1-	3					1	1		NF	
29	1055	1115	1100	1+	3	2		3			1		1055E	No data
29	1609	1633D	1616	1	3						17		1609	17535
29	1630	1642D	1637	1	3	1					16		*	
29	1807	1825D	1810	1	3						14		1806	17535
29	1836	1851D	1838	1	3						15		1829	17539
29	1914	1930	1918	1-	3						11		1913	17545
29	2314	2351D	2320	1-	3					1	3		2318	17535
29	2351E	0011D	2355	2+	3	2			1				2349	17535
30	0034	0058D	0046	1-	1	1							0036E	17539
30	0058	0156	0118U	1-	1	1							0054	17539
30	0358	0418D	0401	1-	1					1			0358	17539
30	0427	0450	0430	1-	3	1				1			0426	17539
30	0542	0652D	0600	1	3				1	1			*	
30	0654	0720	0658	1-	3				1	1			0652	17539
30	0722	0804	0743	1	1				1				0722	17545
30	1827	1900	1832	1	3						3		1824	17535
30	2300	2324	2308	1-	3				1		3		2302	17539
31	0327	0508D	0412	1	3				1	1			*	
31	0508E	0616D	0534	1-	3				1	1			*	
31	0655	0705	0659	1-	3	1			1	2			NF	
31	0801	0821D	0804	1-	1					1			0803	17556
31	1302	1304D	1304	1-	3					1	2		1303	17539
31	1336	1409	1353	1+	3	3		3			1		*	
31	1417	1430	1420	1	3						2		*	
31	2136	2154	2138	1	3				1		2		2135	17539

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PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION
01	0000-2400 A3, A28, A43, A50, A53
02	0000-2400 A3, A32, A43, A53
03	0000-2400 A3, A26, A43, A50, A53
04	0000-2400 A3, A50, A53
04	0227-0257 WWVB
05	0000-2400 A3, A37, A41, A50, A53
06	0000-2400 A3, A28, A53
07	0000-2400 A3, A28, A41, A53
08	0000-2400 A3, A28, A43, A53, A57
09	0000-2400 A3, A32, A43, A53
10	0000-2400 A3, A26, A28, A37, A43, A51, A53
10	1600-2100 WWVB
10	2230-2400 GN
11	0000-2400 A3, A28, A37, A43, A53
11	0100-1045 GN
12	0000-2400 A28, A43, A53
13	0000-2400 A28, A37
13	0503-0534 WWVB
14	0000-2400 A28, A37
15	0000-2400 A43, A53
16	0000-2400 A3, A32, A53
17	0000-2400 A26, A28, A43, A53
18	0000-2400 A53, A57
19	0000-2400 A41, A43, A53
20	0000-2400 A43, A53
20	2020-2106 WWVB
21	0000-2400 A41, A43, A53
22	0000-2400 A53
23	0000-2400 A3, A32, A43, A53, A57
24	0000-2400 A26, A28, A51, A53, A57
25	0000-2400 A43, A53, A57
25	1800-1830 WWVB
26	0000-2400 A37, A53
27	0000-2400 A53, A57
28	0000-2400 A53, A57
29	A43, A53, A57
30	0000-2400 A3, A28, A32, A41, A43, A53, A57
31	0000-2400 A26, A51, A41, A52, A57

STATIONS REPORTING FOR MARCH 1981:

Station	Type
Agassiz Station, Massachusetts, USA (A53)	SES
Cleveland, Ohio, USA (A28)	SES
Darmstadt, GFR (DA)	SWF
Eugene, Oregon, USA (A57)	SES
Fort Riley, Kansas, USA (A41)	SES
Glenorchy, Tasmania, Australia (GN)	SWF
Hiraiso, Japan (HI)	SWF
Hobart, Tasmania, Australia (TA)	SES
Houston, Texas, USA (A50)	SES
Huancayo, Peru (HU)	SWF
Inubo, Japan (IN)	SPA
Juliusruh, GDR (JH)	SWF
Kasugai, Japan (KA)	SPA
Kuhlungsborn, GDR (KU)	SEA, SWF
Lake Hiawatha, New Jersey, USA (A32)	SES
Lintong, China (Lt)	LF-SPA
Louisville, Kentucky, USA (A26)	SES
Mahwah, New Jersey, USA (A5)	SES
Maui, Hawaii, USA (MI)	SWF
Missoula, Montana, USA	SES, SWF
Panska Ves, Czechoslovakia (PU)	SWF, SEA
Paterson, New Jersey, USA (A3)	SES
Portage, Michigan, USA (A51)	SES
St. Cloud, Minnesota, USA (SC)	SES
Sofia, Bulgaria (SF)	SEA
Thornwood, New York, USA (A48)	SES
Trenton, New Jersey, USA (NJ)	SES
Upice, Czechoslovakia (UI)	SEA
Vsetin, Czechoslovakia (VS)	SEA
Zilina, Czechoslovakia (VS)	SEA

SIDs BY HALE REGION

MARCH 1981

Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17481					1																										
17483		1	1	3																											
17487		1																													
17491		2		3																											
17492							1																								
17493					1			1																							
17497					2		1																								
17498					1			1			2																				
17501				1							1																				
17502					1																										
17503								1																							
17505											1																				
17511									1				3																		
17512							1	3	1	1	1	2			2	3	1														
17513								1	2	1	1																				
17514											1	3	1			1															
17518											1																				
17528																		4	1				5	7	4						
17531																											1				
17532																3															
17533																		2						1	1		1	1			
17535																							2		5	1	1		4	1	
17536																									1		1				
17537																							3		1						
17539																									1		2	2	2	6	2
17545																													1	1	
17548																									1						
17556																															1
NO FLARE	2	1	4	2	2	4	1	2	3			1		3	2		2		1	3		3	1	3		2	2	1	1		1
NO FLARE PATROL	1	8		4	3	6	1		1	2		1		4	7		2	3	2	3	1	1				3		1	3	1	4
NO DATA	4	2	1			1							3	4					1	3	13	11				3			1		
EVENT TOTALS	7	15	6	13	11	11	5	9	8	4	8	7	7	11	11	7	5	9	5	9	14	15	11	11	14	9	8	5	12	9	8

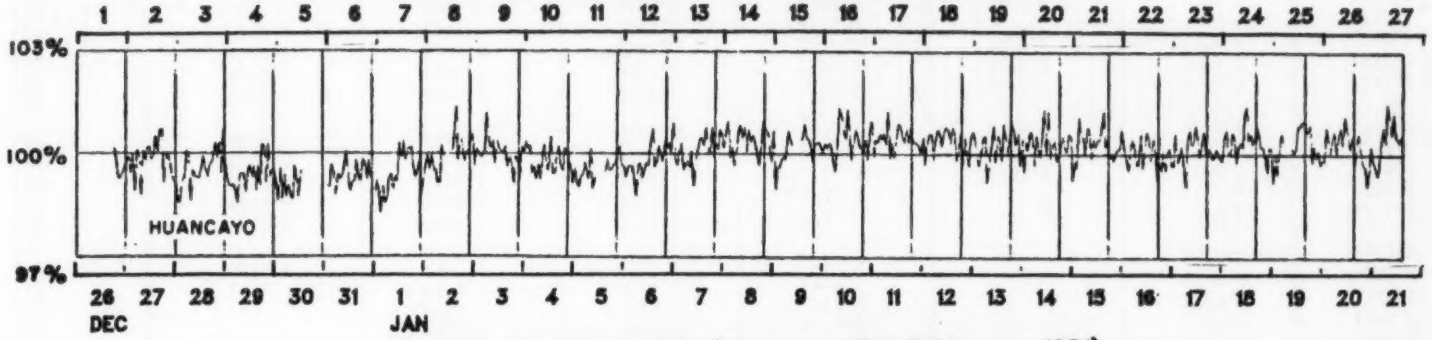
COSMIC RAY INDICES
(Neutron Monitors)

Day	Mar 1981 ALERT Average (cts/h)/100	Mar 1981 DEEP RIVER Average (cts/h)/300	Mar 1981 CLIMAX Average (cts/h)/100	Mar 1981 HUANCAYO Average (cts/h)/100	Feb 1981 CLIMAX Average (cts/h)/100	Feb 1981 HUANCAYO Average (cts/h)/100	Jan 1981 HUANCAYO Average (cts/h) 100
1	6514.1	6132.7	3640.0	1705.8	3662.6	1706.0	1717.6
2	6368.8	5997.7	3541.7	1667.4	3619.8	1697.7	1725.2
3	6337.3	5983.4	3521.0	1666.8	3588.7	1690.3	1728.8
4	6362.0	5987.0	3539.3	1677.8	3603.5	1693.1	1724.6
5	6297.3	5969.5	3533.9	1689.9	3639.8	1701.2	1718.7
6	6185.1	5867.9	3470.5	1679.9	3644.4	1699.6	1723.5
7	6261.8	5931.0	3505.4	1682.1		1700.0	1729.0
8	6403.4	6027.5	3545.6	1690.1		1702.4	1734.1
9	6549.1	6155.3	3633.9	1703.8		1714.6	1730.9
10	6542.2	6198.2	3661.3	1711.0		1708.7	1734.2
11	6584.9	6243.1	3689.8	1718.8		1708.3	1735.5
12	6617.3	6279.2	3718.4	1725.6		1710.2	1734.4
13	6535.8	6182.2	3673.6	1717.6		1714.0	1731.0
14	6488.6	6179.5	3678.1	1718.8		1721.7	1733.2
15	6505.1	6158.3	3661.0	1720.8		1722.4	1734.0
16	6529.5(22)	6174.0	3658.6	1716.1		1728.3	1729.2
17		6189.1	3668.6	1719.0		1730.3	1729.8
18		6215.1	3683.5	1719.0		1729.3	1733.1
19	6652.3(21)	6274.6	3711.6	1722.1		1732.8	1732.2
20	6666.4	6295.2	3742.8	1727.5		1725.0	1733.9
21	6676.3	6301.7	3751.0	1731.8		1723.7	1731.3
22	6693.8	6308.3	3744.3	1732.9		1723.6	1734.1
23	6717.3	6325.7	3754.7	1732.2	3733.0	1726.4	1732.3
24	6702.3	6326.7	3752.0	1730.8	3691.0	1711.8	1733.0
25	6699.3	6345.8	3767.6	1735.7	3716.5	1716.1	1735.2
26	6541.1	6217.4	3696.2	1713.9	3672.7	1708.0	1731.1
27	6499.5	6156.7	3657.8	1704.2	3628.2	1709.3	1733.3
28	6519.3	6152.0	3652.8	1706.3	3629.7	1708.0	1742.0
29	6535.2	6148.5	3668.5	1710.7			1728.4
30	6535.4	6165.5	3686.8	1718.5	3651.6	1713.1	1713.0
31	6595.8	6229.5	3714.1	1725.8			1702.9
MEAN	6521.3	6165.1	3655.9	1710.5			1729.4

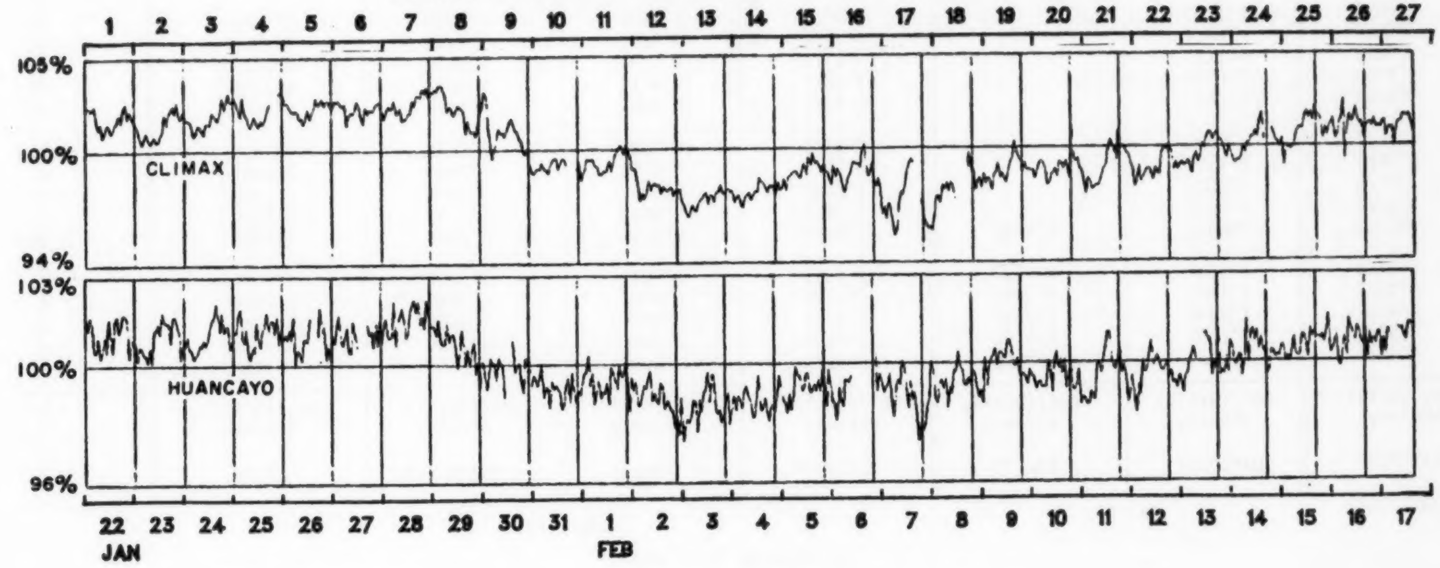
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2015 (December 1980–January 1981)

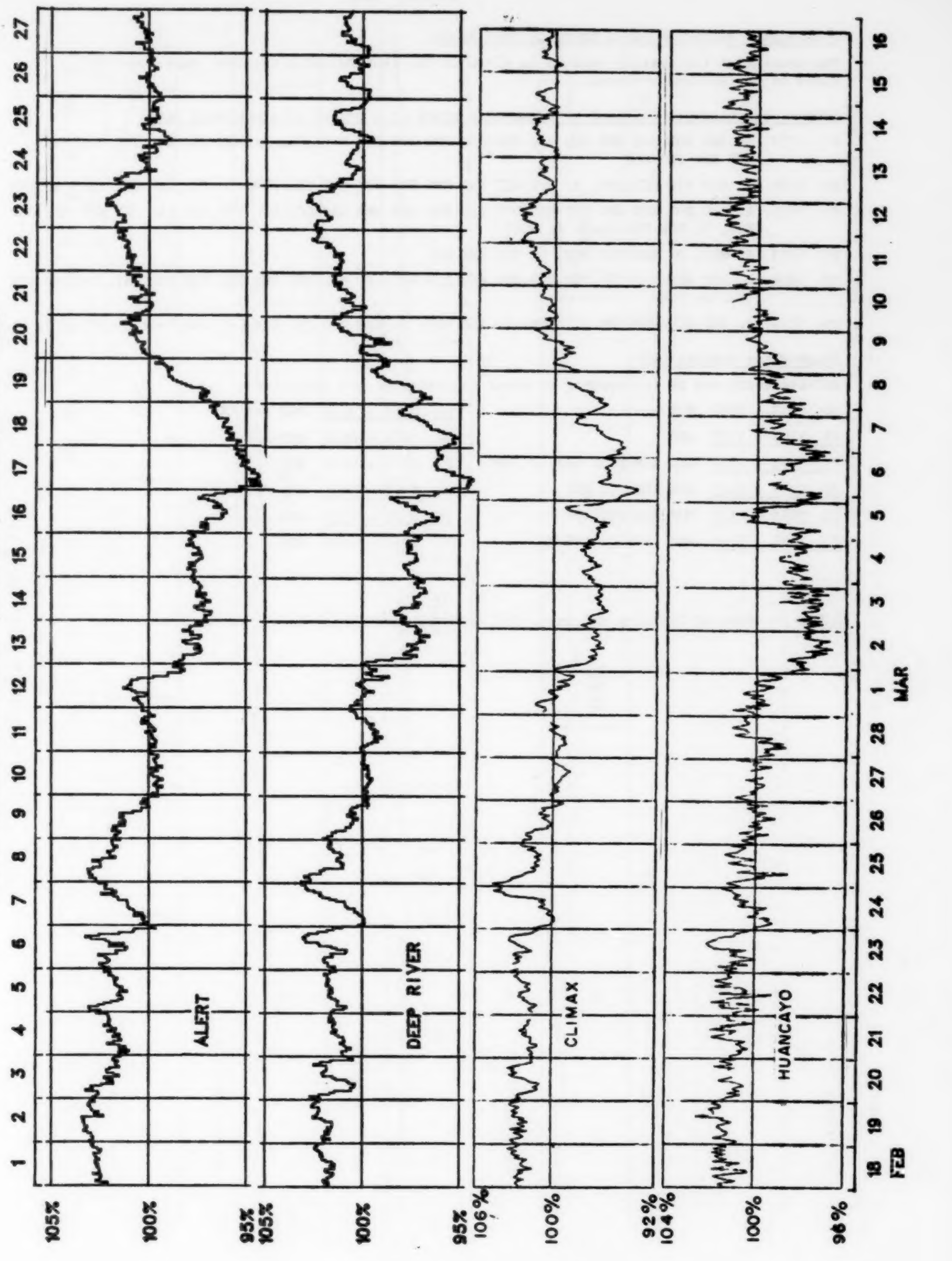


Bartels Rotation 2016 (January 1981–February 1981)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2017 (February 1981–March 1981)



SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

MARCH 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

01 0737 A: SOD DOB NUR WNG DOU VIC FUR HRB EBR COI FRD MPO KGL; B: WIT HAD MMB TOL ALM KAK HTY KNY CZT DUM

02 0654 A: SOD VIC FUR MPO; B: WNG WIT HAD MMB EBR HTY CZT KGL DUM; C: TOL KAK KNY (si: A: HRB)

05 0535 A: SOD DOB ESK WNG WIT HAD DOU VIC FUR HRB MMB EBR COI TOL FRD ALM KAK HTY KNY MPO CZT KGL; B: NGK DUM (pc3: A: NGK)

07 0153 A: MPO; B: WNG VIC HRB; C: TOL KNY KGL

12 1824 A: ESK WNG DOU VIC FUR HRB COI FRD ALM MPO; B: SOD WIT NGK HAD EBR TOL KNY; C: MMB DUM (si: A: DOB)

25 1749 A: WNG DOU HRB EBR COI ALM; B: NGK HTY; C: HAD KAK KNY CZT KGL DUM (si: A: WIT VIC; B: TOL)

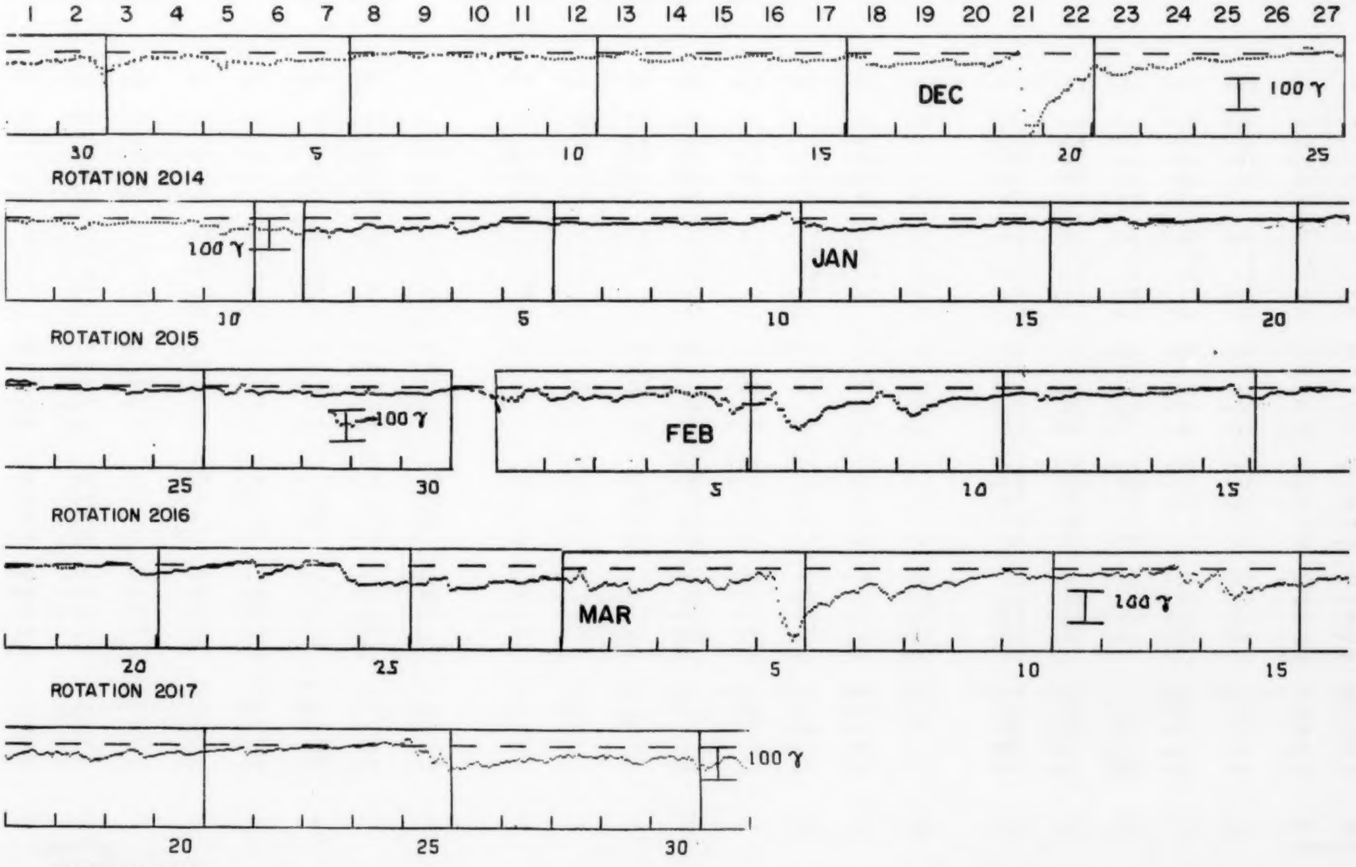
Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

06 0213 - 0230	HTY	24 0155 - 0230	MMB KAK KNY
21 1106 - 1135	WNG	24 0624 - 0635	MMB KNY
21 1259 - 1320	WNG ALM MPO? (si: C: MPO)	27 0017 - 0055	MMB
22 2351 - 2425	MMB KAK HTY KNY	28 0408 - 0445	MMB KNY
23 0648 - 0727	MMB KAK HTY KNY	28 0535 - 0550	KNY
23 1204 - 1215	WNG (si: B: HRB MPO)	31 0951 - 1025	NGK

NOTE: Dst-data of February and March 1981 have not been received.

GEOMAGNETIC ACTIVITY INDICES
Hourly Equatorial Dst
by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

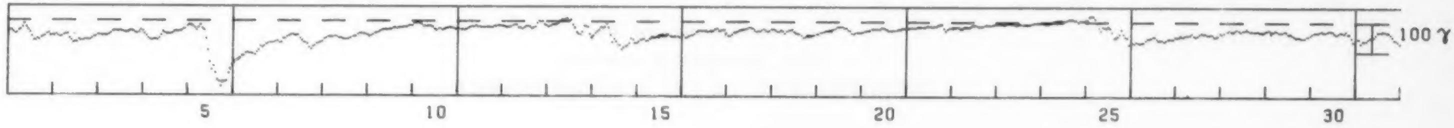
HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

MARCH 1981

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-33	-32	-38	-43	-40	-33	-30	-22	-10	-23	-32	-40	-53	-66	-66	-61	-64	-57	-53	-51	-44	-41	-50	-49
2	-50	-45	-52	-55	-52	-47	-45	-44	-60	-66	-74	-71	-72	-63	-67	-67	-63	-63	-63	-63	-59	-54	-52	-47
3	-47	-50	-49	-50	-49	-46	-41	-36	-34	-34	-36	-34	-37	-38	-39	-38	-35	-33	-36	-40	-43	-38	-31	-36
4	-44	-51	-59	-63	-65	-62	-63	-64	-59	-49	-37	-41	-44	-44	-43	-41	-37	-35	-36	-36	-34	-28	-26	-18
5	-13	-14	-18	-24	-32	-22	-13	-26	-31	-61	-99	-138	-164	-152	-175	-198	-204	-220	-204	-203	-201	-176	-163	-149
6	-139	-133	-130	-124	-117	-116	-108	-106	-109	-110	-111	-114	-105	-98	-86	-88	-84	-78	-74	-72	-74	-71	-68	-67
7	-74	-72	-59	-59	-53	-49	-46	-44	-48	-47	-48	-59	-66	-72	-73	-78	-89	-95	-86	-83	-75	-73	-71	-68
8	-60	-57	-53	-52	-54	-52	-50	-54	-58	-56	-61	-62	-61	-62	-57	-52	-51	-50	-44	-40	-40	-42	-43	-46
9	-49	-49	-44	-39	-38	-37	-33	-30	-28	-29	-29	-28	-26	-23	-23	-24	-21	-20	-20	-19	-18	-15	-14	-15
10	-7	-6	-4	-6	-11	-17	-17	-17	-15	-17	-19	-27	-31	-25	-24	-29	-27	-24	-22	-20	-23	-23	-26	-25
11	-25	-28	-27	-29	-26	-22	-19	-17	-18	-14	-18	-18	-20	-19	-20	-19	-18	-21	-20	-16	-15	-13	-14	-14
12	-16	-18	-20	-18	-17	-13	-11	-12	-21	-20	-25	-20	-16	-15	-18	-24	-20	-18	-6	1	-1	1	-11	-14
13	-17	-14	-11	-10	-10	-6	2	7	8	7	10	2	7	-12	-20	-36	-42	-43	-35	-14	-16	-18	-42	-51
14	-46	-38	-33	-28	-19	-22	-17	-8	-20	-45	-69	-58	-67	-78	-80	-93	-87	-83	-80	-72	-56	-61	-72	-72
15	-66	-61	-59	-58	-65	-63	-57	-52	-53	-52	-50	-46	-44	-42	-46	-42	-41	-48	-50	-50	-49	-50	-52	-48
16	-44	-54	-52	-47	-45	-44	-40	-34	-30	-30	-32	-30	-32	-34	-31	-31	-30	-25	-22	-31	-31	-27	-28	-38
17	-47	-48	-42	-36	-36	-33	-29	-27	-26	-25	-23	-19	-19	-22	-29	-33	-32	-32	-28	-25	-30	-33	-30	-25
18	-25	-28	-33	-34	-29	-31	-38	-32	-29	-27	-26	-34	-38	-40	-41	-45	-53	-50	-44	-44	-44	-44	-44	-40
19	-39	-36	-35	-33	-30	-30	-29	-27	-25	-23	-17	-17	-16	-16	-20	-21	-28	-30	-38	-40	-36	-36	-36	-35
20	-34	-31	-29	-28	-28	-24	-24	-24	-24	-25	-20	-20	-23	-26	-30	-30	-28	-28	-27	-25	-24	-21	-21	-20
21	-21	-20	-18	-20	-20	-17	-16	-16	-17	-16	-13	-14	-15	-16	-14	-13	-10	-9	-7	-21	-30	-24	-20	-19
22	-19	-19	-17	-17	-20	-20	-16	-16	-17	-16	-12	-10	-11	-13	-14	-14	-13	-11	-10	-11	-12	-10	-9	-6
23	-7	-7	-7	-8	-7	-5	-5	-6	-7	-9	-10	-7	-6	-9	-9	-8	-10	-8	-7	-5	-3	-3	-4	-2
24	-3	-5	-6	-6	-3	0	2	4	6	5	6	3	4	7	10	11	9	6	6	0	5	3	5	8
25	8	18	21	19	11	-2	-19	-29	-15	-18	-20	-15	-21	-34	-53	-50	-47	-39	-25	-40	-50	-53	-76	-72
26	-68	-71	-65	-69	-71	-68	-68	-61	-55	-55	-52	-48	-49	-56	-62	-61	-60	-65	-62	-57	-55	-57	-57	-49
27	-49	-48	-45	-49	-45	-43	-44	-41	-37	-45	-48	-45	-39	-36	-38	-38	-42	-42	-40	-41	-49	-48	-45	-36
28	-40	-36	-30	-30	-26	-31	-30	-26	-23	-28	-32	-27	-26	-22	-28	-31	-30	-32	-31	-29	-33	-34	-34	-29
29	-27	-25	-31	-32	-26	-29	-34	-34	-33	-29	-31	-38	-37	-41	-45	-50	-49	-49	-53	-53	-53	-46	-45	-41
30	-37	-34	-34	-35	-31	-28	-33	-33	-30	-27	-28	-30	-36	-40	-37	-32	-34	-37	-29	-38	-38	-51	-64	-67
31	-54	-55	-70	-62	-62	-60	-54	-49	-52	-47	-39	-32	-31	-32	-29	-30	-33	-33	-39	-47	-58	-60	-64	-71



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